June 2015

Tacoma Link Expansion

Environmental Evaluation

SOUNDTRANSIT
Central Puget Sound
Regional Transit Authority

U.S. Department of Transportation
Federal Transit Administration

Environmental Evaluation

I. Project Description 1
II. NEPA Class of Action 2
III. Information Required for Documented Categorical Exclusions 4
A. Detailed Project Description 4
B. Location and Zoning 10
BUILT ENVIRONMENT 11
C. Transportation (Traffic, Transit, Bicycle, and Pedestrian) 11
D. Aesthetics 13
E. Air Quality 14
F. Environmental Justice 15
G. Hazardous Materials 17
H. Noise and Vibration 18
I. Historic and Cultural Resources 21
J. Recreational 24
K. Property Acquisition 24
L. Energy 24
M. Public Services 25
N. Utilities 25
NATURAL ENVIRONMENT 26
O. Coastal Zone 26
P. Floodplains 26
Q. Navigable Waterways 26
R. Prime and Unique Farmlands 26
S. Biological 27
T. Seismic and Soils 27
U. Water Quality 28
V. Wetlands 29
CONSTRUCTION 29
W. Construction Impacts 29
CUMULATIVE AND INDIRECT 31
X. Cumulative and Indirect Impacts 31
Y. Public Involvement 32
MITIGATION MEASURES 33
Z. Mitigation Measures 33
FEDERAL, STATE, AND LOCAL ACTIONS, POLICIES AND ORDINANCES 38
AA. Other Federal Actions 38
AB. State and Local Policies and Ordinances 38
AC. Related Federal and State/Local Actions 39

Tables

1 Station Platform Description and Location

2 Demographic Characteristics

Attachments

A Purpose and Need Statement

B Exhibits

C Visual Simulations

D Air Quality Analysis

E FTA ESA Screening Checklist

F EPA Sole Source Checklist

Technical reports separately bound and available upon request:

- Transportation Technical Report (available on electronic CD)
- Noise and Vibration Technical Report (available on electronic CD)
- Historic and Archaeological Resources Technical Report (available on electronic CD)

Environmental Evaluation

(FTA Region 10
CATEGORICAL EXCLUSION and
DOCUMENTED CATEGORICAL EXCLUSION WORKSHEET)

I. Project Description

Sponsoring Agency	**Date Submitted**	**FTA Grant Number(s) (if known)**
Sound Transit		

Project Title

Tacoma Link Expansion

Project Description

The Tacoma Link Expansion (TLE) would extend the existing Tacoma Link system an additional 2.4 miles in Tacoma, Washington. The project includes six new stations. In addition, one station (Theater District) would be relocated in the median, in front of the Old City Hall Building. The TLE would connect Tacoma's Central Business District to the Stadium and Hilltop Business Districts and to Tacoma's "medical mile," which includes major hospitals and medical centers. The project also involves expanding the existing operations and maintenance facility (OMF) on a property adjacent to the existing OMF.

Purpose and Need for Project

The purpose of the TLE project is to expand the Tacoma Link system to improve mobility and access to the regional transit system for Tacoma residents, employees, and visitors by connecting the existing Tacoma Link system with Tacoma's major activity centers and destinations within the City. The project would serve underserved populations and neighborhoods in Tacoma, while also providing economic benefit to the city as a whole with a cost-effective and environmentally sensitive investment. Refer to Attachment A, Purpose and Need, for a more detailed purpose and need statement.

Project Location

The TLE project travels along portions of Commerce Street, Stadium Way, N 1st Street, Division Avenue, and Martin Luther King (MLK) Jr. Way in the City of Tacoma, Pierce County, Washington. For a map of the project location, refer to Exhibit B-1 in Attachment B, Exhibits.

Project Contact

Environmental Documentation Contacts:

Steve Kennedy or Elma Borbe
Sound Transit
Planning, Environmental, and Project Development
401 South Jackson Street
Seattle, Washington
(206) 398-5302 (Steve)
(206) 398-5445 (Elma)
steven.kennedy@soundtransit.org
elma.borbe@soundtransit.org

Project Contacts:

Sue Comis, Tacoma Link Expansion Project Manager
Allison Gregg, Community Outreach Specialist
Sound Transit
Planning, Environmental, and Project Development
401 South Jackson Street
Seattle, Washington
(206) 398-5063 (Allison)
sue.comis@soundtransit.org
allison.gregg@soundtransit.org

II. NEPA Class of Action

Answer the following questions to determine the project's potential class of action. If the answer to any of the questions in Section A is "YES", contact the FTA Region 10 office to determine whether the project requires preparation of a NEPA environmental assessment (EA) or environmental impact statement (EIS).

A. Will the project significantly impact the natural, social and/or economic environment?

☐ YES (contact FTA Regional office)
☒ NO (continue)

A.1 Is the significance of the project's social, economic or environmental impacts unknown?

☐ YES (contact FTA Regional office)
☒ NO (continue)

A.2 Is the project likely to require detailed evaluation of more than a few potential impacts?

☐ YES (contact FTA Regional office)
☒ NO (continue)

A.3 Is the project likely to generate intense public discussion, concern or controversy, even though it may be limited to a relatively small subset of the community?

☐ YES (contact FTA Regional office)
☒ NO (continue)

B. Does the project appear on the following list of Categorical Exclusions (CEs)?

The types of activities listed below describe actions which, when the corresponding conditions are met, are under usual circumstances categorically excluded from further NEPA analysis under 23 Code of Federal Regulations (CFR) 771.118I. Unusual circumstances may include, but are not limited to, the presence of wetlands, historic buildings and structures, parklands, or floodplains in the project area, or the potential for the project to impact other resources. (Descriptions of each type of activity, and corresponding conditions, are available here; this worksheet simply lists the name of each exclusion.)

☐ YES (If checked AND there are no special circumstances, check the applicable box and briefly describe the activity in Section III. A; then proceed to the signature block on the back page.)

☒ NO (continue to Section II. C)

23 CFR 771.118I (1-13)

☐ 1. Utility and Similar Appurtenance Action

☐ 2. Pedestrian or Bicycle Action

☐ 3. Environmental Mitigation or Stewardship Activity

☐ 4. Planning and Administrative Activity

☐ 5. Activities Promoting Transportation Safety, Security, Accessibility and Communication

☐ 6. Acquisition, Transfer of Real Property Interest

☐ 7. Acquisition, Rehab, Maintenance of Vehicles or Equipment

☐ 8. Maintenance, Rehab, Reconstruction of Facilities

☐ 9. Assembly or Construction of Facilities

☐ 10. Joint Development of Facilities

☐ 11. Emergency Recovery Actions

(Several conditions attach to this type of CE. We recommend you consult with FTA if you think this CE may apply to your action.)

☐ 12. Projects Entirely within the Existing Operational Right-of-Way.

☐ 13. Federally Funded Projects

(Must be less than $5 million in federal funding, or having a total estimated cost of not more than $30,000,000 and Federal funds comprising less than 15 percent of the total estimated project cost.

C. Does the project appear on the following list of potential documented Categorical Exclusions?

Projects that are categorical exclusions under 23 CFR 771.118(d) require additional documentation demonstrating that the specific conditions or criteria for the CEs are satisfied and that significant effects will not result.

☒ YES (Check correct box below and continue to Part III)

☐ NO (Contact FTA Regional Office)

23 CFR 771.118(d)(1-6)

☐ 1. Modernization of a highway by resurfacing, restoring, rehabilitating, or reconstructing shoulders or auxiliary lanes.

☐ 2. Modernization of a highway by resurfacing, restoring, rehabilitating, or reconstructing shoulders or auxiliary lanes.

☐ 3. Acquisition of land for hardship or protective purposes. (NOTE: Hardship and protective buying will be permitted only for one or a limited number of parcels, and only where it will not limit the evaluation of alternatives (including alignments) for planned construction projects.)

☒ 4. Acquisition of right-of-way. (NOTE: No project development on the acquired right-of-way may proceed until the NEPA process for such project development, including the consideration of alternatives, where appropriate, has been completed.)

☐ 5. Construction of bicycle facilities within existing transportation right-of-way.

☐ 6. Facility modernization through construction or replacement of existing components.

☒ "Other" actions which meet the criteria for a CE in the CEQ regulations (40 CFR 1508.4) and will not result in significant environmental effects. Actions must not: induce significant impacts to planned growth or land use; require the relocation of significant numbers of people; have a significant impact on any natural, cultural, recreational, historic or other resource; cause significant air, noise, or water quality impacts; have significant impacts on travel patterns; or otherwise have significant environmental impacts (either individually or cumulatively).

III. Information Required for Documented Categorical Exclusions

A. Detailed Project Description

Describe the project and explain how it satisfies the purpose and need identified in Part I.

The TLE project is the proposed expansion of the existing Tacoma Link system from the Theater District Station to the Stadium and Hilltop districts in downtown Tacoma. The project includes constructing and operating an extended system approximately 2.4 miles long.

The TLE is part of the Sound Transit 2 (ST2) plan of transit investments, financing for which was approved by the voters in 2008. The ST2 plan includes programmed capital funds for the TLE, if other public or private entities provide matching funds. Sound Transit intends to apply for a Federal Transit Administration (FTA) Small Starts grant for the TLE. The funding strategy anticipates federal funding to pay for approximately one-third of the total project cost.

Sound Transit initiated an Alternatives Analysis process for the TLE in August 2012 with early scoping under the National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) to solicit comments on the purpose and need for the project, the range of alternatives to be examined, and proposed evaluation criteria. Early scoping included two public and agency scoping meetings/open houses and a 30-day public comment period to help define the alternatives and evaluation process. The early scoping process and comments are

summarized in the Early Scoping Summary Report, which is available from Sound Transit.

At the conclusion of the early scoping comment period, 24 corridor options in 11 distinct corridors were identified. Two additional corridor options were added to the evaluation as a result of public input. The results of the initial screening and detailed evaluation are reported in the Tacoma Link Expansion Alternatives Analysis Report and State Environmental Policy Act (SEPA) Addendum, May 2013. The AA also analyzed two transit modes, light rail transit (LRT) and bus rapid transit (BRT). Overall, LRT performed better in this evaluation. In addition, LRT is the only mode consistent with Sound Transit's local planning process in this corridor, including the agency's Long-Range Plan and ST2.

On May 23, 2013, after gathering feedback from the public and the Tacoma City Council, the Sound Transit Board of Directors selected the E1-North Downtown Central Corridor (Hilltop via the Stadium District) as the preferred corridor and LRT as the mode for further study in the Tacoma Link expansion environmental review.

In cooperation with the City of Tacoma and Pierce Transit, Sound Transit conducted the next project phase: defining and evaluating alignment options within the selected corridor. The results of the alignment evaluation were presented to the public and City Council through an extensive outreach process.

On February 4, 2014, the Tacoma City Council unanimously passed Resolution No. 38837, recommending moving the proposed TLE alignment into the environmental review phase. On February 27, 2014, based on the alignment evaluation and public feedback, the Sound Transit Board of Directors identified the current preferred alternative for the TLE project (Motion No. M2014-11). The alignment identified would follow and generally be contained within existing rights-of-way (city streets). The project is a partnership between Sound Transit, the City of Tacoma, and the FTA.

Alignment and Station Locations

The proposed alignment extends north from the existing Tacoma Link terminus at the Theater District Station at Commerce and 9th Street via Stadium Way, continues west via N 1st Street and Division Avenue, and then continues south on MLK Jr. Way to S 19th Street. Sound Transit is considering six potential station locations on the alignment as follows (see Exhibit B-1 in Attachment B):

- Stadium Way/S 4th Street
- Stadium District
- MLK Jr. Way/Division Station
- MLK Jr. Way/S 6th Avenue
- MLK Jr. Way/S 11th Street
- MLK Jr. Way/S 19th Street

In addition, one station (Theater District) would be relocated in the median, in front of the Old City Hall Building. Stations would be spaced approximately 1,100 feet to 2,500 feet (0.2 to 0.5 mile) apart for convenient access for pedestrians and bicyclists.

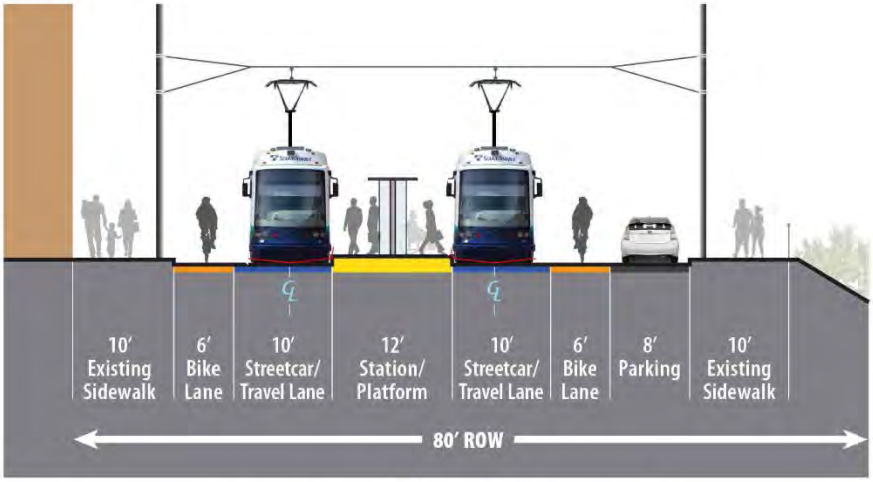
The proposed terminus of Tacoma Link is north of the MLK Jr. Way/S 19th Street intersection. The project is expected to include tail tracks at both S 19th Street and the Tacoma Dome

Station, where a Tacoma Link vehicle could be parked to accommodate approximately 10-minute headways that are planned during the peak period. An expansion of the existing Tacoma Link Operations and Maintenance Facility (OMF) on a property (824 E 25th Street, Tacoma) adjacent to the existing facility is also part of the project (see below).

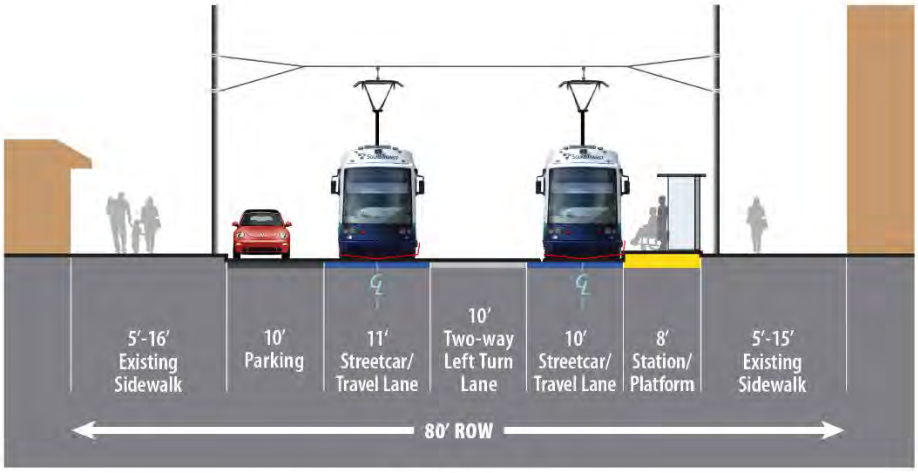
Track Alignment, Roadway Configuration, and Traffic Signals and Signage

The overall approach to TLE project design is to minimize the project footprint and maintain the construction footprint within the existing public right-of-way to the extent practical. The alignment would be constructed within the existing City of Tacoma right-of-way and would generally share the lanes with other vehicles. The objective of the project's design is to blend into the normal traffic stream as practicably and safely as possible. Existing turn lanes, parking lanes, loading zones, bus stops, bicycle lanes, and sidewalks would mostly remain, as they exist today, with exceptions at stations and other areas where revisions are necessary to provide safe crossings and movements. Efficient multimodal access to station areas is also considered in the location of the stations.

Typical cross-sections of TLE are as follows:



TYPICAL SECTION
STADIUM WAY MEDIAN STATION (LOOKING NORTH)



TYPICAL SECTION
MLK WAY AND S 11TH AVE (LOOKING SOUTH)

Portions of Tacoma Link trackway would be exclusive, which means that they would not share lanes with other vehicles. Exclusive trackway portions are proposed along Division from MLK Jr. Way to approximately N "I" Street and at the terminus of MLK Jr. Way and S 19th Street (Exhibit B-1). Along the portion of Division, exclusive trackway is proposed in the eastbound direction for approximately 700 feet to accommodate controlled speeds of the Tacoma Link vehicle down the steeper grade (approximately 7 percent grade) and to reduce the potential for automotive traffic delays. At the terminus of MLK Jr. Way and S 19th Street, the northbound trackway at the station would be exclusive trackway for approximately 600 feet to allow Tacoma Link vehicles to wait at the station, if needed, without impacting northbound roadway traffic traveling along MLK Jr. Way. The TLE has also been designed to include a special track design along sections of the alignment along MLK Jr. Way to avoid any potential vibration impacts on adjacent properties. During final design, additional testing would be performed to determine whether a special track design along sections of MLK Jr. Way is required.

Traffic Signals

At signalized intersections, Tacoma Link vehicles would generally operate in mixed flow, with other vehicles in the roadway, following normal traffic signalization. Special signal phasing or new signals may be used in the following locations:

- Commerce and 9th Street – add a new signal phase to control Tacoma Link vehicle movement through the intersection
- Division Street at "I" Street—add a Tacoma Link-only signal phase to allow eastbound Tacoma Link vehicles to change lanes
- MLK Way at 17th Street – add a new signal to control Tacoma Link vehicle movement through the intersection
- MLK Way at 18th Street—add a new signal to control Tacoma Link vehicle movement into end-of-line station track

Efforts will be made to operate signals to provide priority to Tacoma Link vehicles while minimizing impacts to vehicular traffic. Transit Signal Priority (TSP) and other signal revisions are part of the project and would be constructed with the project.

Station Platforms

Station platforms would be constructed at the curb-side or in the median. Table 1 lists the preliminary station platform design being evaluated for each location.

Each platform has a boarding area approximately equal to the length of one Tacoma Link vehicle, approximately 66 feet long. Ramps and curbs transition the boarding area back to the sidewalk or pavement; therefore, each station occupies a footprint of approximately 85 to 90 feet long. Curb-side platforms would be 8 feet wide, and median platforms would be 12 feet wide. Each platform would be Americans with Disability Act (ADA) accessible from either the sidewalk or crosswalk and would have level boarding with the Tacoma Link vehicle's low-floor section. Seating, signage, lighting (unless provide by streetlights), a canopy shelter, fare collection equipment, and public art would be constructed at each platform.

TABLE 1
Station Platform Description and Proposed Location

Station Platform Type	Proposed Station Location
Median platform - Occupies the center of the roadway and serves both directions of travel from a single platform. A median platform may replace an existing center-turn lane and may restrict left-turn movements across the roadway to driveways.	• Stadium Way/S 4th Street • MLK Jr. Way/ S 19th Street • Relocated Theater District
Curb-side platform– - Extends out from the sidewalk and curb to serve a single direction of travel. It may replace a parking lane or loading zone (typically up to four parallel parking spaces, depending on the specific site conditions). Typically, the sidewalk behind the platform can remain without reconstruction.	• Stadium District (two platforms) • MLK Jr. Way/Division (two platforms) • MLK Jr. Way/S 6th Avenue (two platforms) • MLK Jr. Way/S 11th Street (two platforms)

New curb ramps to provide ADA accessibility would be constructed at all four corners of intersections where new stations are proposed. New curb ramps would also be constructed at all four corners of intersections where Tacoma Link tracks make tight turns that encroach into the existing curb. Ramps would not be reconstructed at intersections that are not impacted by TLE track construction. Driveways and sidewalks would be reconstructed in areas where it is necessary to accommodate Tacoma Link tracks and/or station platform ramps and curbs.

Utilities and Traction Power Substation

Sound Transit's practice is to relocate utilities if they are within a restricted-utility area under the new trackways. During the conceptual and preliminary design phases, the location of existing utilities would be investigated to determine whether they conflict with the proposed track design. Where the proposed track design conflicts with existing parallel utilities or crossing utilities, a proposed utility relocation plan would be developed. The plan would either protect or relocate the utility away from the restricted area. All existing utilities within the corridor would be examined for protection from stray current that may result from electricity of passing Tacoma Link vehicles.

The TLE segment would be serviced by up to five traction power substations (TPSSs). These TPSSs would provide 750-volt direct current power to the system using an overhead contact system (OCS) supported by poles located approximately 150 feet apart on both sides of the roadway and up to about 275 OCS poles. The TPSSs would be located within existing City of Tacoma right-of-way or on properties currently owned by the City of Tacoma (see Exhibit B-5 for proposed locations). Poles for the OCS would be located within the existing roadway right-of-way and pole design would include streetlights where practical to minimize the total number of poles located along a street. As currently designed, the OCS would not be attached to any buildings in the project corridor.

Operations

The project would add five new Tacoma Link vehicles to the Tacoma Link system. Normal operating hours would be the same as the existing system (5:00 a.m. to 10:00 p.m. on weekdays, and approximately 7:50 a.m. to 10:00 p.m. on Saturday, and approximately 9:50

a.m. to 5:50 p.m. on Sunday), but would have shorter headways (time between vehicles). The TLE would have 10-minute headways from approximately 6:35 a.m. to 8 p.m. on weekdays and all day on Saturday, and 20-minute headways at other times on the weekdays and all day on Sundays. The project's alignment, stations, and new vehicles would be compatible with the existing system so that both old and new vehicles can traverse the entire system from end to end. The new vehicles would have similar characteristics to the existing fleet, including the following:

- Vehicles would be approximately 66 feet in length
- Bidirectional
- Low-floor and near-level boarding
- Double-articulated
- ADA-accessible with bridge plate

Operations and Maintenance Facility Expansion

OMF expansion is required to increase storage space to accommodate the new Tacoma Link vehicles, spare parts, and maintenance equipment, and to provide office, reporting, and work space for additional operations and facility personnel. The proposed site for the OMF expansion is located adjacent to the existing OMF and is approximately 0.7 acres. The proposed OMF expansion site is shown on Exhibit B-3.

Geotechnical Investigations

The project includes geotechnical investigations consisting of drilling geotechnical borings at certain points along the TLE alignment and near the proposed OMF expansion site. The borings will be 10 to 100 feet in depth and up to 10 inches in diameter. The information the investigations provide will inform the preliminary design of the TLE project and help assess the geological conditions of the site for structural purposes; assess the soil for contaminants; and at the proposed OMF expansion site also assess the likelihood of encountering buried cultural resources.

Construction

Project construction is anticipated to take up to 3 years, but construction would not occur in the same areas over the entire period. Prior to construction, a work-specific construction plan would be developed that would include information on estimated schedules and durations and appropriate sequencing. For the most part, trackway construction is similar to typical road construction. Because the alignment is located in the existing right-of-way, no demolition of existing structures is required, and the first phase of construction would include any required utility relocations prior to installing the trackway. The trackway would typically be constructed in 4- to 8-block sections. The construction process would involve first removing existing pavement, and then placing the tracks, pouring concrete around the tracks, matching the slab to the existing roadway, and repaving and restriping the roadway. During the trackway construction the station platform and any needed utilities for the station could be installed, but the installation of the shelter and station amenities would occur later in the construction process. The OCS poles and span wire to power the Tacoma Link vehicles would be installed after construction of the trackway and station platforms. Outside of the trackway, the project would also repave with new asphalt and restripe the roadway and construct new curb ramps

where required to comply with federal ADA standards. The restriping is designed to allow for safe passage and clearance of the Tacoma Link vehicle travel lanes adjacent to other parking, bicycle, and vehicle lanes. New traffic warning and regulatory signs are placed along the alignment to provide safety and information to drivers, bicyclists, and pedestrians. During construction, provisions for ADA-compliant accessible routes for pedestrians and access to businesses, residences, and community facilities along the alignment would be included.

Aside from the OMF expansion, most construction activity would occur in the existing roadway right-of-way and may require using on-street parking areas and adjacent travel lanes. To the extent possible, one travel lane would be open or rerouted to maintain the flow of traffic. When a single lane of traffic is open, flagging operations would be in place to guide motorists through the work zone. Where the trackway crosses an intersection, either the intersection would be closed or limited access would be maintained. Sidewalks and crosswalks would be opened or rerouted so that pedestrians can safely walk through the construction areas. However, depending on construction activities, sidewalks or crosswalks may be temporarily closed and pedestrians rerouted to a nearby facility.

Construction at the OMF would require the demolition of existing structures and excavation as needed to construct the new facility. Depth of excavation for the OMF site expansion is about 10 feet. Because of the poor soil conditions at the proposed OMF expansion site, 12-inch steel piles are expected to be driven to depths of up to 100 feet. The project would require approximately 90 to 120 piles, and the exact number required would be determined during final OMF expansion design. After the pile-driving is completed, the new trackway would be installed similar to the process used for the expansion of the alignment. Depth of excavation for the alignment expansion is about 14 inches for the trackway, about 24 inches for the TPSS foundations, and between 8 to 12 feet for the poles used for the OCS. The existing OMF and other current Sound Transit property in the area of the existing OMF would be used for construction staging, in addition to any construction staging within the existing roadway right-of-way where construction activities are ongoing. Any additional required construction staging areas would be identified during final design. These areas are needed for construction activities, equipment storage, construction materials delivery and storage, contractor trailers, and construction crew parking. The construction contractor would lease the properties and obtain permits as needed. Staging areas would not require any permanent property acquisition. See Section W, Construction for more information.

B. Location and Zoning

Existing Land Uses and Zoning

Exhibit B-1 presents a map of the project vicinity. The project corridor features a range of existing land uses, including a mixture of smaller neighborhood-oriented retail and commercial spaces, churches, schools, large hospital campuses and smaller medical offices and health centers, parks, community resources, and multi- and single-family residential developments. The proposed OMF expansion site, which is adjacent to the existing OMF, is located in an area of and zoned for industrial uses. There are no critical or natural areas, such as wetlands or streams, that would be affected by the project.

The zoning information for the City of Tacoma was generalized into six categories (single-family residential, multi-family residential, commercial, mixed-use, institutional, and industrial). The mixed-use category is the primary zone adjacent to the proposed alignment, and industrial use

surrounds the proposed OMF expansion site. Exhibit B-2 illustrates the generalized zoning adjacent to the TLE proposed alignment and the OMF expansion.

Sound Transit has been working with the City of Tacoma on planning the expansion of the Tacoma Link system since 2003. The project is consistent with goals and polices of the City of Tacoma and the City's Comprehensive Plan, Hilltop Subarea Plan, and North Downtown Subarea Plan and zoning designations support transit in the project corridor. The project is within a Puget Sound Regional Council (PSRC)-designated Regional Growth Center, and population growth is expected within and around the project corridor. PSRC plans for a 170 percent population growth within a 0.5-mile of the stations by 2035, and the zoning designations listed above support increased development and mixed-use and multi-family development in the project corridor.

Community

The TLE is located in portions of the North Downtown and Hilltop Subareas in the City of Tacoma. Both areas include a mix of residential and smaller neighborhood-related business. The Hilltop Subarea includes a number of large medical facilities along MLK Jr. Way, referred to locally as the "medical mile," including Tacoma General Hospital, St. Joseph Medical Center, Group Health Tacoma Medical Center, and the Hilltop Regional Health Care Center. The subarea also includes a number of vacant and underutilized properties. Within 0.25 mile of the proposed project corridor, there are a number of community resources, including a large number of religious institutions, parks, and community facilities that provide opportunities for those in the community to interact. There are also numerous affordable housing units within and near the project corridor. The OMF is located in the South Downtown Subarea, specifically within the Dome District, where land uses are primarily industrial but also include the Tacoma Dome, Sound Transit Sounder Station, and the Tacoma Dome Station parking garage.

BUILT ENVIRONMENT

C. Transportation (Traffic, Transit, Bicycle, and Pedestrian)

The following summarizes the potential traffic and parking impacts identified in the Transportation Technical Report. Traffic and parking construction impacts are described in Section W, and Mitigation Measures are described in Section Z. Operating the TLE would not result in any significant impacts on traffic operations or parking on the existing roadways and would be beneficial by shifting some automobile users to public transit.

During operation, vehicle miles traveled (VMT) would decrease by approximately 15,000 miles on a typical weekday compared with the No Build Alternative, with most of the decrease occurring in the transportation study area (North Downtown/Stadium District, Division/MLK, and South MLK) because of the increased transit use. The increase in transit use would result in minor decreases in traffic volumes and congestion as persons shift from automobiles to the TLE.

Operating the TLE could result in changes to existing bus routes, including potential reroutes, and other adjustments, to provide a complementary transit network. In 2035 TLE would result in 3,000 new daily transit riders (those who shifted from nontransit to transit mode). Intersection level of service (LOS) with the project would remain constant at most study intersections, but in general, average vehicle delay would be worse than the No Build

Alternative. In coordination with the City of Tacoma, the project would add signal phasing and timing to help improve the efficiency and reliability of the Tacoma Link vehicles. It is assumed that the Tacoma Link vehicle would trigger TSP at signalized intersections along the Tacoma Link alignment. When that occurs, some green time allocated to side streets would be transferred to the Tacoma Link vehicle movement; therefore, side street movements would have less green time, and delays would likely increase on these side streets. As a result, signals on the streets intersecting (crossing) the TLE would gain more vehicle delay when the TLE vehicle is at the intersection; however, in most cases average vehicle delays would only increase 5 seconds or less during the PM peak hour. Two intersections would have delay increases in excess of 10 seconds during the PM peak hour, N 1st Street/N Tacoma Avenue (15 seconds per vehicle [sec/veh]), and Division Avenue/"I" Street (11 sec/veh). However, all study intersections would operate at LOS E or better and within accepted jurisdictional LOS standards (LOS E for City of Tacoma intersections located in the study area). Tacoma Link operations would also result in vehicle queue lengths that exceed available storage at two stations (Stadium Way/S 4th Street and MLK/S 11th Street stations) and four intersections (N 1st Street/N Tacoma Avenue, Division Avenue/"I" Street, Division Street/MLK Jr. Way, and MLK Jr. Way/S 9th Street) when the TLE vehicle is present.

The TLE would adhere to best design practices for transit operations and maintain City of Tacoma roadway standards to minimize potential effects on safety. These include replacing or upgrading transportation elements, such restriping crosswalks where striping has faded, improving ADA ramps at intersections and at midblock crossings along the TLE alignment, and clearly delineating travel lanes.

The project would include pedestrian safety, bicycle safety, and motorized vehicle safety elements, such as wayfinding, signage for bicyclists, and new signalized intersections for motor vehicles.

Currently there are sidewalks present on most public rights-of-way in the study area. No sidewalks would be removed, and nearly all sidewalks would remain the same width as their current configuration. Side platform station locations would expand the pedestrian area along the sidewalk. All existing crosswalks would remain in place.

"J" Street, which is one block east of MLK Jr. Way, is proposed by the City of Tacoma as a bicycle boulevard and would serve as the main north-south bicycle thoroughfare. Other new bicycle facilities are planned on east-west routes that bisect the study area. The Tacoma Link design minimizes locations where a bicycle must cross the tracks at less than a 60-degree angle, which is generally where a track can "catch" a bicycle wheel. At locations where bicycles must cross tracks, the design would provide a clear and consistent striped route across tracks. Street markings and signage would be implemented to direct bicycles to cross the tracks at a 90-degree angle. Bicycles are allowed on the TLE vehicles, facilitating combined bicycle and transit trips.

The net loss as a result of the TLE is expected to be about 50 on-street parking spaces along the entire 2.4-mile alignment, with most of the parking removed for the two exclusive TLE travel lanes at the MLK Jr. Way/South 19th Station (20 spaces) and the south side of Division Street between MLK Jr. Way and N "I" Street (10 spaces). In other areas, station platforms would remove up to four parking spaces except the Stadium Way/South 4th Street, which does not affect any parking. The MLK Jr. Way/Division Station would remove 4 of the 12 available disabled parking spaces in front of Tacoma General Hospital on MLK Jr. Way. Sixteen angle

parking spaces would be converted to parallel parking adjacent to the outbound tracks by the Relocated Theater District Station, which would result in a loss of up to six spaces. The existing Theater District Station would be converted into additional parallel parking spaces. Along N 1st Avenue between N "G" Street and N Tacoma Avenue, 10 pull-in angle parking spaces would be converted to back-in angle spaces to provide better visibility to drivers leaving the parking space. Along MLK Jr. Way, if Pierce Transit routes are shifted off of MLK Jr. Way, the bus transit stop areas could be converted to on-street parking creating about 4 additional parallel parking spaces at each bus transit stop.

Along the TLE alignment, stations would be within a 0.2 mile and a 0.5-mile, 10-minute walking distance of each other, and most of downtown Tacoma would be 0.5 mile or less from a Tacoma Link station. This would enable pedestrian facilities along the project corridor to be well connected to the stations. TLE would not result in any changes to freight mobility.

D. Aesthetics

Will the project have an adverse effect on a scenic vista?

☒ **No**

☐ **Yes, describe**

The City of Tacoma has no designated scenic vistas adjacent to or near the project corridor. For some residences, as on Stadium Way, views to the water (Commencement Bay) would be altered by intervening OCS (overhead contact system) wires and project improvements, but views would not be substantially affected given the existing vegetation such as the large trees east of Stadium Way. The TLE would be located at an elevation lower than the existing trees east of Stadium Way.

Will the project substantially degrade the existing visual character or quality of the site and its surroundings?

☒ **No**

☐ **Yes, describe**

The TLE features (vehicles, stations, and OCS) would be consistent with the transportation character of the arterial streets in which they would be located. The height and scale of the Tacoma Link vehicles would be similar to Pierce County Transit buses that pass along the streets, as would their transportation vehicle character. The proposed alignment would follow the same routes that Tacoma streetcars and trolleys have followed in the past, which would reflect the historic transportation character of the corridor. As discussed in Section I, Historic and Cultural, the setting of the buildings in the corridor would not be adversely affected because the corridor would resume the setting of earlier eras. The OCS and associated support poles that would be located along the alignment between existing utility poles and lines would be similar in character to the utility features. The presence of the OCS and poles would not substantially degrade existing visual character or quality of nearby areas.

The stations would generally have a higher degree of architectural design than typical bus stops and would be a positive addition to the visual quality of the areas where they would be located. The OMF expansion would be adjacent to an existing Sound Transit maintenance facility and would be similar in size, scale, character, and visual quality. Refer to Attachment C, Visual Simulations, Exhibits C-2 to C-9, for visual simulations of the project.

Will the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

☒ **No**

☐ **Yes, describe**

The TLE is within an urban setting with existing street lights located along the project roadways. The new stations would require lighting, but they would not result in a new source of substantial light or glare. Any station lighting would be directed downward, and lights from Tacoma Link vehicles would be focused on the trackway in the direction of travel. The OMF would require additional lighting, but it is located in an industrialized area and would not result in any adverse effects.

E. Air Quality

Does the project have the potential to impact air quality?

☐ **No**

☒ **Yes, describe**

The potential localized air quality impacts of changes in traffic conditions as a result of TLE were estimated. The project is anticipated to reduce vehicle miles travelled (VMT) and would result in beneficial effects on regional air quality. A qualitative analysis of greenhouse gas (GHG) emissions was done for the TLE. Using information from the U.S. Environmental Protection Agency on the GHG emissions from a typical vehicle, the reduction in VMT associated with the project would result in a reduction in GHGs of approximately 730 tons of carbon dioxide (CO_2) per year compared to not constructing the project. However, operation of the OMF would result in a minor increase in GHG emissions associated with exhaust from worker vehicles and any fossil-fueled maintenance equipment. GHG emissions would also be generated due to temporary construction activities of the TLE. These GHG emissions would be from exhaust generated by construction related equipment and worker vehicle commute. Due to the short term nature of construction emissions for the TLE, it is anticipated that the GHG emissions associated with construction activities would be minimal. Refer to Attachment D, Air Quality Analysis, for information.

Is the project located in an EPA-designated non-attainment or maintenance area?

☐ **No**

☒ **Yes, indicate the criteria pollutant and contact FTA to determine if a hot spot analysis is necessary.**

- ☒ **Carbon Monoxide (CO)**
- ☐ **Ozone (O3)**
- ☒ **Particulate Matter (PM10 or PM2.5)**

The TLE is located in an area within the Puget Sound that is classified as a maintenance area for CO and nonattainment for $PM_{2.5}$. Because the project is in a CO maintenance area, a project-level analysis is necessary to verify that no localized impacts would cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS). The analysis used EPA MOVES2010 vehicle emission simulation model to estimate vehicle emission and the CAL3QHC dispersion model to estimate peak 1-hour CO concentrations near the three intersections identified as requiring further analysis for potential CO hot spots (Division Avenue/N Tacoma

Avenue, N 1st Street/N Tacoma Avenue, and Division Avenue/N "I" Street/S "I" Street). Peak 8-hour CO concentrations were also obtained as part of the analysis. Based on this analysis, the project would not result in any adverse effects on air quality, and the CO levels are all below the NAAQS. Refer to Attachment D, Air Quality Analysis, for information on the analysis conducted for the TLE.

If the non-attainment area is also in a metropolitan area, was the project included in the MPO's Transportation Improvement Program (TIP) air quality conformity analysis?

☐ **No**

☒ **Yes Date of USDOT conformity finding: 2010**

The TLE is in the Statewide Transportation Improvement Program (STIP) and the Metropolitan Transportation Plan (MTP). The project is specifically identified in Transportation 2040 (Transportation 2040 ID No. 5459), which was adopted by the Puget Sound Regional Council (PSRC) in 2010; the project is also included in PSRC's 2013-2016 Transportation Improvement Program.

F. Environmental Justice

Determine the presence of minority and low-income populations (business owners, land owners, and residents) within about a quarter-mile of the project area. Indicate whether the project will have disproportionately high and adverse impacts on minority or low-income populations. Describe any potential adverse effects. Describe outreach efforts targeted specifically at minority or low-income populations.

Table 2 provides information on the demographic characteristics of the area within 0.25 mile of the proposed alignment compared with the City of Tacoma. As shown in Table 2, the study area has a higher percentage of minority and low-income populations than the City of Tacoma and Sound Transit District. The Sound Transit District includes the most populated areas of King, Pierce, and Snohomish counties and generally follows the urban growth boundaries created by each county. .

TABLE 2
Demographic Characteristics

Characteristic	Study Area (0.25 mile)	Tacoma	Sound Transit District
Total Population	17,577	198,397	2,866,120
Minority (percent)	41.5	39.5	31.1
Low-income (percent)	29.5	17.6	11.2
Households with no vehicle (percent)	34.1	9.7	N/A
Households with limited English proficiency (percent)	4.7	8.2	4.9

N/A: Not available, no data at the Sound Transit District level.

Sources:
U.S. Census Bureau. 2013. 2008-2012 American Community Survey.
U.S. Census Bureau. 2010. Decennial Census.

Although the study area includes concentrations of minority and low-income populations greater than the City of Tacoma and the Sound Transit District, the TLE is not anticipated to

result in any significant impacts that would result in disproportionately high and adverse impacts on minority and/or low-income populations. The alignment is constructed within existing right-of-way. Property acquisitions are required for the OMF expansion, the TPSS locations, and to construct a tail track segment. The OMF expansion requires the acquisition of a site adjacent to the existing OMF. The TPSS locations are either within existing City of Tacoma right-of-way or located on vacant parcels owned by the City of Tacoma, and the tail track is located at the Tacoma Dome Station parking garage. None of the property acquisitions result in the displacement of any residences and the property required for the OMF is currently used for a truck repair business which does not provide any unique services to environmental justice populations. The property that would be acquired is located in an industrial zoned area and does not provide any special or unique services to minority or low-income population.

For the most part, construction activities associated with the TLE are similar to a typical roadway project and would result in increased levels of noise, dust, and traffic impacts. The impacts would be temporary, and mitigation measures have been identified to minimize impacts. During construction, access would be maintained or coordinated with adjacent businesses and residences.

After mitigation, there would be no traffic impacts, no noise impacts, no vibration impacts, no visual quality impacts, and no impacts to natural resources during operation. As noted, the project alignment is in the existing right-of-way, so it would not affect parks or community resources, nor would it create a barrier to any neighborhoods. Therefore, no adverse neighborhood impacts are anticipated.

The project is anticipated to result in benefits that would accrue to a greater degree to the minority and low-income populations in the study area. These benefits include improved access to more reliable and more frequent transit to areas with higher concentrations of minority and low-income populations. The TLE would have 10-minute headways from approximately 6:35 a.m. to 8 p.m. on weekdays and on Saturdays. TLE would provide improved access to affordable housing (defined as all legally restricted affordable housing that is participating in a state or federal housing program; other types of affordable housing such as units required to remain affordable due to developer agreements may not be accounted for) as shown in Exhibit B-2. Additionally, TLE is located in a Community Empowerment Zone (CEZ), which encompasses the Tacoma Central Business District. TLE would provide increased access to the CEZ, including better access to job training opportunities.

As described in Section Y, Public Involvement, Sound Transit has conducted extensive outreach to inform the public, including minority and low-income populations, about upcoming events and opportunities to provide input. As part of their outreach, Sound Transit recognizes the importance of reaching minority and low-income populations and has developed methods to engage these populations, including placing advertisements in local publications aimed at minority and limited English proficient populations, including *LaRaza*, *Korea Daily*, and *Nguoi Viet Bac*; providing interpreter service contact information on all printed materials in an appropriate number of languages other than English; and ensuring public event venues are community-based and accessible by transit. Sound Transit would continue to reach out and provide opportunities for minority and low-income populations to engage as the project moves through early design and environmental phases and through later project development stages.

G. Hazardous Materials

Is there any known or potential contamination at the project site? This may include, but is not limited to, lead/asbestos in existing facilities or building materials; above or below ground storage tanks; or a history of industrial uses of the site.

☒ **No, describe steps taken to determine whether hazardous materials are present on the site.**

☐ **Yes, note mitigation and clean-up measures that will be taken to remove hazardous materials from the project site. If the project includes property acquisition, identify if a Phase I Environmental Site Assessment for the land to be acquired has been completed and the results.**

No significant impacts are anticipated as a result of encountering hazardous materials, and normal operations of the TLE are not anticipated to result in any hazardous material impacts. An environmental database search of the TLE alignment and OMF expansion sites was conducted in June 2014.[1] The database search identified sites in or adjacent to the project corridor that have a record of hazardous material, substance, or waste handling or that have the potential to be contaminated or have been contaminated in the past. A database search was also conducted for an area 660 feet around the project corridor and 1,280 feet around the proposed OMF expansion site.

Based on an Environmental Data Resources (EDR) search, no known sites were identified along the alignment or at the OMF site and TPSS locations. Of the over 75 sites identified in the EDR search, six were classified as high-risk. High-risk sites are defined as those that could create liability for Sound Transit either due to construction activities or by virtue of acquiring all or a portion of the site. High-risk sites typically include contaminated sites that are located within or adjacent to the project construction limits and that have not received a 'no further action' determination from regulatory agencies, such as the Washington State Department of Ecology. All sites identified are located on parcels adjacent to the existing Tacoma right-of-way and the TLE alignment, and none within the 1,280 feet of the OMF. The six sites are shown on Exhibit B-4 in Attachment B and the following provides information on these sites:

- Key Bank Stadium Branch at 601 N 1st Street—Listed on the Confirmed or Suspected Contaminated Site List (CSCSL) and Leaking Underground Storage Tank List (LUST) as awaiting cleanup for petroleum contamination.
- Morrells Dry Cleaners at 608 N 1st Street—Listed on the CSCSL and Voluntary Cleanup Program (VCP) as cleanup started. Contaminants listed include conventional inorganic and halogenated organics in groundwater, halogenated and nonhalogenated solvents, and polycyclic aromatic hydrocarbons (PAHs) in soil.
- Bruce Titus Chevrolet at 633 Division Avenue—Listed on the CSCSL, LUST, and VCP as cleanup started. Contaminants listed include halogenated organics, metals, nonhalogenated solvents, and petroleum in groundwater and soil. This site has also generated soil containing F001 waste during cleanup action performed under the VCP. F001 wastes are dangerous wastes that are typically costly to dispose of.

[1] Environmental Data Resources, Inc. (EDR), 2014. Datamap Area Study, Tacoma, Washington. June.

- Texaco Station 632320400 at 801 Division Street—This site is listed on the CSCSL and LUST. Contaminants listed include petroleum products and phenolic compounds in soil and groundwater.
- Main Street Grocery at 901 Martin Luther King Jr. Way—Listed on the CSCSL and LUST as awaiting cleanup. Contaminants listed include benzene in soil.
- MLK Housing Development Property at 1023 Martin Luther King Jr. Way—Listed on the CSCSL as cleanup started. Contaminants listed include petroleum products, arsenic, and metals in soil and suspected petroleum products in groundwater.

Potential impacts associated with sites with existing contamination could occur during construction if existing soil or groundwater contamination is encountered. For the TLE project, no impacts are anticipated because none of the identified hazardous material sites are within the City of Tacoma right-of-way where the alignment would be located or at the proposed TPSS locations and OMF site. In addition, groundwater would not likely be encountered during the construction of the TLE alignment because depth of construction activities would be no deeper than 12 feet for the OCS poles, and groundwater depths along the alignment range from 27 to 50 feet. Of the sites identified above, three are listed as "cleanup started," which minimizes the risk if these sites are cleaned prior to construction of the TLE. Because property would be acquired for the OMF expansion, the TPSS locations, and the tailtrack at the Tacoma Dome Station parking garage, Sound Transit would complete a Phase 1 environmental site assessment, and, if required, a Phase 2 environmental site assessment, in subsequent design.

TPSS locations are within existing City of Tacoma right-of-way or vacant parcels owned by the City of Tacoma, and the tail track would be located at the Tacoma Dome Station parking garage. No hazardous material sites have been identified at these properties. For the OMF, the proposed expansion site has also not been identified as a site with any known hazardous materials. Because the alignment would be constructed within the existing right-of-way and sites have not been identified at the properties that would be acquired, no impacts are anticipated.

Normal operational impacts would be unlikely because the trains operate through electricity; therefore, fuel spills would not occur. Minor operational impacts, however, could result from using hazardous materials during maintenance activities on the tracks and at the expanded OMF. During track maintenance, there would be an extremely low chance that a small amount of diesel fuel or hydraulic fluid could spill from maintenance vehicles. The likelihood of impacts (e.g., releases) from project operations and maintenance activities would be low.

H. Noise and Vibration

Does the project have the potential to increase noise or vibration?

☐ **NO**

☒ **YES, describe impact and provide map identifying sensitive receptors such as schools, hospitals, parks and residences. If the project will result in a change in noise and vibration sources, you must use FTA's "Transit Noise and Vibration Impact Assessment" methodology to determine impact.**

The following summarizes the findings identified in the Noise and Vibration Technical Report. Construction impacts are described in Section W and Mitigation Measure are described Section Z. Operating the TLE would not result in any impacts on noise and vibration levels and no

mitigation is required. The noise and vibration analysis performed for the TLE is consistent with the FTA guidance manual.

TLE Corridor

The noise and vibration analysis was conducted for all potentially sensitive land uses along the project corridor, including residences, medical buildings, institutional uses, and commercial buildings. No noise impacts were identified along the project corridor that exceeds the FTA criteria. Further, with special track design implemented where required, all vibration levels are expected to be below the FTA vibration criteria.

Noise Impacts

Sound Transit characterized the existing noise environment through onsite surveys and onsite noise monitoring. Monitoring was performed at 14 locations throughout the corridor, including 5 long-term (24-hour or greater) and 9 short-term (15-minute) sites. Noise measurements included the Leq, which is an energy average noise level, and the Ldn, which is a 24-hour measurement with a 10-decibel (dB) penalty for noise that occurs between 10:00 p.m. and 7:00 a.m. to account for increased sensitivity during nighttime hours. Noise levels ranged from 64 to 71 A-weighted decibels (dBA) Ldn along Stadium Way, with peak-hour Leq's of 56 to 71 dBA in the same area. Noise levels along MLK ranged from 62 to 63 dBA Ldn with Leq's of 61 to 64 dBA. These noise levels are used to describe the existing noise levels in the corridor and to establish the impact criteria under FTA regulations.

The noise analysis was performed for 260 individual properties representing approximately 826 residences, medical buildings, institutional uses, commercial buildings, and undeveloped properties along the project corridor. For residential units, and other areas with sleeping quarters, the FTA uses the Ldn as the noise descriptor, while for institutional uses like schools and churches, the peak operational hour Leq is used as the descriptor.

The noise analysis uses reference noise levels from the existing Tacoma Link vehicles, operational schedule, track type, train speeds, and other operational characteristics to predict the noise from normal system operations. Noise sources aside from the normal operations of the Tacoma Link vehicles would include the bells used on Tacoma Link vehicles at stations and during emergencies, high-pitched noise known as wheel squeal when the Tacoma Link vehicles travel through curves, and the noise resulting from movement over track crossovers (MLK Jr. Way/S 18th Street and Tacoma Dome Parking Garage) used to guide Tacoma Link vehicles from one track to another, which have a gap that increase noise levels. In addition, there would be noise associated with the maintenance of Tacoma Link vehicles at the OMF. The results of the projections are then compared to the FTA criteria to determine if any noise impacts exist.

During operation there would be no locations where the TLE's noise levels exceed the FTA criteria. The noise contributed by the TLE would not increase area noise levels by an amount that meets or exceeds the FTA criteria. Activities at the expanded OMF would also be below the FTA criteria along with criteria from the City of Tacoma Municipal Code.

Sound Transit will evaluate wheel squeal during pre-revenue service, testing, and operation at tight curve segments including Division Avenue and N 1st Street near Stadium High School and at Division Avenue and MLK Jr. Way. If issues are identified, mitigation such as track lubricant or other measures will be implemented. See Section Z., Mitigation Measures.

Vibration Impacts

Vibration can be transmitted from vehicles and other sources through the ground to nearby buildings; this is referred to as groundborne vibration. Existing vibration in most areas of the corridor is dominated by heavy truck traffic, buses, and other vehicles, with the highest levels occurring near rough roads or roadways with potholes. Vibration propagation measurements were collected at two sites: on Stadium Way at Division Avenue and on MLK Jr. Way, at the Tacoma General Hospital. The propagation measurements are a measure of how vibration reduces with increased distance from the tracks. The vibration propagation measurements, along with measured vibration levels from the same vehicles used for the TLE, are used to predict vibration levels at residences, schools, hospitals, and other sensitive structures along the corridor.

Based on vibration testing, exterior vibration levels could meet or exceed the FTA criteria at a distance of 75 to 100 feet from the trackway during TLE operation. However, considering the potential reduction in vibration that occurs as a result of the structure of the buildings, vibration levels at residences, schools, and other vibration-sensitive properties along Stadium Way, N "E" Street, N 1st Street, and Division Avenue are expected to have interior vibration levels that are below the FTA criteria. Vibration levels along the MLK Jr. Way part of the corridor are similar to those along Stadium Way; however, some of the residences along this part of the corridor are smaller wooden structures that may not have the same levels of structural vibration reduction. Special (low-vibration) track design, therefore, has been incorporated into the project along sections of MLK Jr. Way to avoid any potential vibration impacts.

Sound Transit will perform additional site specific vibration propagation testing and analysis during final design to verify assumptions and refine the vibration analysis along the entire corridor. This analysis will verify the structural vibration reductions and be used to determine whether the special (low-vibration) track design measures incorporated into the project are needed. If the final analysis confirms that vibration levels would be below the FTA criteria, then standard track design would be used. The special track design reduces vibration levels to within the FTA criteria. Special (low-vibration) track design could include increasing the size and stiffness of the resilient boot that surrounds the rail, using shredded rubber tires under the trackway, or other measures to reduce the level of vibration from the train transmitted into the surrounding ground.

OMF

Construction and operations of the OMF were analyzed under the FTA and City of Tacoma Municipal Code criteria for noise and the FTA criteria for vibration. The nearest residence is over 500 feet from the OMF; however, there are several industrial and commercial uses located within 75 to 150 feet of the proposed expansion. The analysis showed that the noise from construction and operation would be below the relevant criteria, and no noise or vibration impacts are predicted.

I. Historic and Cultural Resources

Impacts to cultural, historic, archaeological, or recreational properties may trigger Section 106 or tribal consultations or a Section 4(f) evaluation, requiring consideration of avoidance alternatives.

Does the project involve any ground disturbing activities?

☐ **No**

☒ **Yes, provide the approximate maximum ground disturbance depth. Also provide information on previous disturbances or where ground disturbance will occur.**

The following summarizes the findings identified in the Historic and Cultural Resources Technical Report. Constructing the TLE project requires ground disturbance. For the project alignment, the greatest depth of disturbance would be between 8 to 12 feet for the OCS poles, depending on soil conditions. Ground disturbance of approximately 14 inches would be required for the trackway. Given the highly developed nature of the project corridor with paving and underground utilities, subsurface archaeological surveys were not conducted. In addition to disturbance from construction for existing roads, existing underground utilities (water, sewer, storm, electrical, gas, and telecommunications) are located along all of the roadways. The Tacoma geographic information system (GIS) data indicate that most sewer utilities are 8 to 15 feet deep, and most storm drains are 5 to 8 feet deep.

Ground disturbance would also occur at the proposed OMF expansion site. The OMF may require excavation up to 10 feet, but the site is located in an area of deep fill, and excavation would not reach native soils. However, the OMF would require between 90 and 120 driven structural pilings because of the soil conditions, and these piles may extend up to 100 feet deep and would reach native soils. At this depth, a potentially eligible archaeological site could be encountered, as was the case as part of the Tacoma Trestle Track and Signal Project. The OMF expansion is adjacent to the Sound Transit Tacoma Trestle Track and Signal Project, which has conducted geotechnical investigations. In late 2013, eleven borings on the south side of South 25th Street were monitored by a qualified archaeologist[2] and in one boring cultural materials were observed. At that time, the materials were recorded as an isolated find and determined not eligible for listing in the National Register of Historic Places (NRHP).

Due to these findings, Sound Transit requested additional archaeological investigations. Of the thirteen additional borings cultural materials were found between approximately 60 and 65 feet below ground surface. Five borings contained cultural materials that included three pieces of cordage (handmade rope), burned shell fragment, petrified wood artifact, and buried surface. The objects were found between approximately 60 and 65 feet below the ground surface. Materials, including cordage, were radiocarbon-dated to about 7,800 years before the present (Stevenson et al., 2013).

FTA, in consultation with DAHP, has determined that this archaeological site is eligible for listing in the NRHP under Criterion D, those archaeological sites that have yielded or may be likely to yield information important in history or prehistory, (Stevenson et al., 2014), and an

[2] Stevenson, Alexander. 2013. 2013-12-16 *Draft Monitoring Report for Geotechnical Investigation for the Tacoma Trestle Project*. Prepared for Central Puget Sound Regional Transit Authority. December 16.

adverse effect has been determined for the Tacoma Trestle project. Because this site is located adjacent to the proposed expanded OMF, the eligible site could extend into the Project site. As a result, construction of the OMF expansion building, which may involve driven piles to a depth greater than 60 feet, could encounter the same archaeological site and result in an adverse effect determination. The identification and effect evaluation on archaeological resources cannot be determined before project approval because of restricted access to the OMF expansion site. The site is privately owned and is almost completely occupied by a structure, restricting access. Given that circumstances impede completing the identification and evaluation efforts before project approval, FTA has prepared, in consultation with DAHP, a Programmatic Agreement (PA) that addresses archaeological resources for both the OMF expansion site and the entire project corridor. The PA stipulates that an Archaeological Resources Testing Plan (Archaeological Plan) be prepared, which would include, but not be limited to, the following:

- Archaeological investigations for the OMF site, including archeological testing as well as monitoring of geotechnical and archeological bores during preconstruction.
- Protocols for the project corridor outside of the OMF area which would include a qualified archaeologist review the geotech bores and recommend whether or not changes to the level of monitoring during construction are warranted.
- Unanticipated Discovery Plan (UDP) that establishes procedures in the event any cultural resources are discovered during any ground-disturbing work including geotechnical activity, archaeological boring, and construction.

Sound Transit would communicate project updates and reviews of plans prepared for the TLE with DAHP and Tribes. If archaeological resources are discovered at the OMF expansion site, FTA, in consultation with DAHP, determines that the Project would adversely affect the resources, then the parties will work together to develop a mitigation plan. An amendment to the PA would be prepared, documenting the findings, FTA's eligibility and effect determination, along with a mitigation plan. If no historic resources are discovered and FTA, in consultation with DAHP, determines no adverse effect, then the Section 106 consultation is complete. The UDP, however, will be in place and complied with for the duration of project construction.

Are there any historic properties in the vicinity of the project?

☐ **No**

☒ **Yes, Attach photos of structures more than 45 years old that are within or adjacent to the project site and describe any direct or indirect impacts the project may cause.**

Historic properties are defined in 36 CFR 800.16 as any historic and prehistoric archaeological sites as well as districts, buildings, structures, objects, and landscapes that are listed in or eligible for listing in the National Register of Historic Places (NRHP). Under SEPA, historic properties also include those listed in the Washington Heritage Register (WHR) (27.34.200 RCW). At the local level, cultural resources are recognized and protected by the City of Tacoma Municipal Code Chapter 13.07, Tacoma Landmarks and Historic Special Review Districts, which established the Tacoma Register of Historic Places for City of Tacoma Landmarks. Any WHR properties or Tacoma Register Landmarks were assumed to also be eligible for listing in the NRHP.

Because the project corridor is known to have had streetcars historically on the same streets as

the TLE alignment, the setting of most buildings that line the corridor would not be affected by the extended rail line, because it would essentially be returning to the earlier, historical condition of the setting. No physical impacts or alterations to buildings are anticipated.

The analysis of historic buildings and structures located within the area of potential effects (APE) includes those buildings and structures that were constructed in or before 1970. 1970 was selected as the threshold year to include a buffer for project completion assuming construction begins in 2018. DAHP concurred with the APE on July 17, 2014. Consistent with the historic use of streetcars in the project corridor, the APE generally follows the street right-of-way and encompasses the area that would be disturbed when constructing the project, including the alignment, stations, and ancillary facilities. The APE includes all stations and the adjacent parcels surrounding the stations, and also includes the existing OMF and parcels surrounding the OMF and the adjacent expansion site.

There are 61 parcels in the APE with buildings that meet the age criteria of construction in or before 1970. Of these 61, 35 parcels were surveyed and evaluated for NRHP eligibility. The other parcels were either previously identified as historic properties or determined not eligible for the NRHP as part of the Tacoma Trestle Replacement Project. Of the 35 parcels surveyed, FTA determined 8 properties are eligible for listing in the NRHP and DAHP concurred. There would be no physical impacts to any of the NRHP eligible historic properties from the proposed project.

Noise and vibration from TLE operations would not exceed applicable thresholds and criteria and would not adversely affect any historic properties (see Section H, Noise and Vibration). The only impacts to historic properties would be changes to their setting from the introduction of new stations and an expansion to the existing OMF. These effects would not be adverse. The project passes through one NRHP historic district, the Old City Hall Historic District, which is also a City of Tacoma Historic Special Review District. Because the project would not make any changes to any of the buildings within the district, no approvals would be needed from the Landmarks Preservation Commission for changes to these historic buildings. Approval would be needed from the Commission for any changes within the district, including the streetscape.

Section 4(f) of the United States Department of Transportation Act of 1966 also applies to historic properties and mandates that Department of Transportation agencies, including the FTA, cannot approve the use of land from significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historic sites unless there is no feasible and prudent alternative to using the land, and the action includes all possible planning to minimize the harm to the property resulting from use. The project does not propose to use any of the Section 4(f) resources listed above. The only property within a historic district that would be used is the existing right-of-way on Commerce Street, west of the Old City Hall, which is not a contributing element to the Old City Hall Historic District. Therefore, there is no Section 4(f) use. Regarding constructive use, given that the project's proximity impacts do not substantially impair adjacent historic resources, there is no constructive use under Section 4(f). Given that Section 4(f) also applies to archaeological sites on or eligible for inclusion on the National Register, additional consultation with DAHP would occur if the OMF expansion site is found to be potentially eligible.

J. Recreational

Is the project located in or adjacent to a park or recreation area?

☐ **No**

☒ **Yes, provide information on potential impacts to the park or recreation area. Please also indicate if the park involved Land and Water Conservation Act funds (Section 6(f))**

The project corridor is directly adjacent to three recreational facilities (Wright Park, People's Park, and People's Community Center which includes a public swimming pool). These facilities are owned and maintained by Metro Parks Tacoma. No facilities in the project corridor have included funding from the Land and Water Conservation fund, which would otherwise qualify these facilities for a Section 6(f) review. The project is located within existing right-of-way, and would not require acquiring any of these facilities, nor would the project result in noise and vibration impacts as discussed above under Section H.

There would be no impacts on Section 4(f) listed above or 6(f) recreational resources in the study area.

K. Property Acquisition

If property is to be acquired for the project, indicate whether acquisition will result in relocation of businesses or individuals.

Property acquisition is needed to allow for expanding the OMF site. For this OMF expansion, one property adjacent to the existing OMF would be required. This 0.7 acre property is currently used for semi-truck repairs and would need to be relocated. The new TPSSs would also require acquisition of properties within City of Tacoma right-of-way or City of Tacoma owned parcels. Up to five TPSSs would be required for the project, but none of the sites would result in the relocation of businesses or individuals. In addition, the construction of the tail track would require property acquisition from Pierce Transit to allow construction of tail track at the Tacoma Dome Station parking garage. The properties required are shown on Exhibit B-5, Property Acquisitions, in Attachment B. No other property acquisitions would be needed because the alignment, stations, and associated infrastructure would be located within the existing City of Tacoma right-of-way. Any property required for temporary construction easements would be identified by Sound Transit during final design, and staging areas are assumed to be identified and leased by the contractor.

L. Energy

If the project includes the construction or reconstruction of a building, identify potential energy conservation opportunities. This includes building materials and techniques used for construction; special innovative conservation features; fuel use for heating, cooling and operations; and alternative renewable energy sources.

The only building to be constructed as part of the project is associated with the OMF expansion. During final design, Sound Transit would identify opportunities to incorporate energy conservation measures, not only with constructing and operating the OMF, but the entire project. Sound Transit adopted a Sustainability Initiative in 2007 and through that developed a Sustainability Plan in 2011 that encourages the efficient use of energy in operations and facilities and the use of construction practices that incorporates recycling,

salvaging, and reducing greenhouse gases. Also, as part of final design, project facilities would be evaluated to determine whether third party certifications, such as Leadership in Energy & Environmental Design (LEED), are applicable.

Electricity needed to power the TLE vehicles, stations, and facilities including the TPSSs would be provided by Tacoma Power. The expansion of Tacoma Link would require additional energy to operate the Tacoma Link system, but the energy needed to power the TLE is not anticipated require Tacoma Power to develop additional energy resources.

M. Public Services

Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.

The TLE project would not result in the increased need for public services because the project would not result in any unplanned or induced increases in population. The project would provide increased transit mobility to health care and schools in the vicinity of the proposed stations. The TLE is not expected to have a significant impact on the travel and response times of public service vehicles. The Tacoma Link vehicles would be similar to the existing buses that travel through the corridor and have dwell times when at a stop. The center turn lane would provide a potential area for public service vehicles to pass Tacoma Link vehicles. Where there is no center turn lane, emergency vehicles could travel in opposing travel lanes. Emergency response vehicle access to Tacoma General Hospital and St. Joseph Medical Center is from "J" Street.

Sound Transit operates its own security forces to provide a safe environment for the public and would also incorporate crime prevention through environmental design (CPTED) principles into the station locations during final design, which would ensure station platforms are easily visible to other patrons and to police and Sound Transit security personal. Other security measures such as passenger emergency telephones and sealed fare boxes would help to deter criminal activity.

N. Utilities

Identify utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

Utilities available in the City of Tacoma include electricity, natural gas, water, sanitary sewer, refuse service and recycling, and communications (telephone and Internet). These utilities are located perpendicular and parallel to the TLE alignment. Larger utilities include 6-inch gas mains at the intersection of Commerce Street and S 7th Street and along Commerce Street between S 7th Street and I-705 intersection, a 18-inch water main that crosses the intersection of Division Avenue and N Yakima Avenue, a 24-inch sanitary sewer along Division Avenue between "J" Street and MLK Jr. Way, and a 18-inch sanitary sewer along MLK Jr. Way between Division and S 3rd Street and at the intersection of MLK Jr. Way and S 11th Street.

Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity that might be needed.

No new utilities are proposed for the project. The TLE would require electricity for operating the system, Tacoma Link vehicles, and the expanded OMF. The TPSS would be powered by electric lines connected to the nearest existing power source and the existing local electrical network

would not need to be upgraded. Additional electrical generating capacity would not be required. Other services, including water and communications, have sufficient existing capacity to meet the project needs.

Utilities impacts could occur as a result of demolition activities, excavation, and the placement of poles. Depending on the depth of utilities, there may be conflicts with the TLE that would require relocation or protection. For the TLE, Sound Transit has developed a Design Criteria Manual that includes information on the criteria and standards for utilities. The Design Criteria Manual includes information regarding conflicting utilities and design criteria that would be followed for any utilities relocation, protection, or replacement. During the conceptual and preliminary design phases, the location of existing utilities would be investigated to determine whether they conflict with the proposed track design. Where the proposed track design conflicts with existing parallel utilities or crossing utilities, a proposed utility relocation plan would be developed. The plan would either protect or relocate the utility away from the restricted area. All utility relocations would be done per all applicable agency regulations, permitting requirements, and utility-provider requirements.

NATURAL ENVIRONMENT

O. Coastal Zone

Is the proposed project located in a designated coastal zone management area?

☐ **No**

☒ **Yes, describe coordination with the State regarding consistency with the coastal zone management plan and attach the State finding, if available.**

The project is located in one of Washington State's coastal zone counties, but neither the new alignment nor the OMF expansion are within areas with designated shorelines of the state.

P. Floodplains

Is the proposed project located within the Federal Emergency Management Agency (FEMA) 100-year floodplain?

☒ **No (Source: City of Tacoma Flood Hazard Areas, Map 12[3])**

☐ **Yes, describe potential impacts, indicate if the project will impact the base flood elevation, and include or link to the FEMA Flood Insurance Rate Map (FIRM) with the project location identified.**

Q. Navigable Waterways

Does the proposed project cross or have the potential to impact a navigable waterway?

☒ **No**

☐ **Yes, describe potential impacts and any coordination with the US Coast Guard.**

R. Prime and Unique Farmlands

Does the proposal involve the use of any prime or unique farmlands?

☒ **No**

[3] City of Tacoma. 2008. *Map 12 Flood Hazard Areas*. Available at: http://www.ecy.wa.gov/programs/sea/shorelines/smp/mycomments/tacoma/12Flood.pdf.

☐ **Yes, describe potential impacts and any coordination with the Soil Conservation Service of the U.S. Department of Agriculture.**

S. Biological

Are there any species located within the project vicinity that are listed as threatened or endangered under the Endangered Species Act? Determine this by obtaining lists of threatened and endangered species and critical habitat from the US Fish and Wildlife Service and the National Marine Fisheries Service.

Based on information provided by the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration National Marine Fisheries Service, there are no species listed as threatened or endangered under the Endangered Species Act located in the project corridor. The project area(s), which are those areas affected directly and indirectly by the TLE do not affect Puget Sound Evolutionarily Significant Unit Chinook salmon and their critical habitat, Puget Sound Distinct Population Segment (DPS) steelhead, or Puget Sound DPS bull trout and their critical habitat because the project is located in an urbanized area with no waterbodies or critical habitat in close proximity.

Describe any critical habitat, essential fish habitat or other ecologically sensitive areas within or near the project area.

The TLE project is located in an urbanized area and is not adjacent to or within 200 feet of any streams or waterbodies. There is no critical habitat, essential fish habitat, or other ecologically sensitive areas within or near the project corridor. FTA's Endangered Species Act (ESA) Screening Checklist is attached (Attachment E, FTA ESA Screening Checklist); based on the information in the checklist and this document, the proposed TLE project would have "no effect" on threatened or endangered species.

T. Seismic and Soils

Are there any unusual seismic or soil conditions in the project vicinity? If so, indicate on project map and describe the seismic standards to which the project will be designed.

☐ **No**

☒ **Yes, describe**

Geologic hazards along the entire TLE alignment could result from seismic-related ground-shaking or fault displacement from the Tacoma Fault, a zone of connected faults located north of Tacoma. Detailed study during final design would confirm the degree of geologic risk. The TLE project would meet applicable seismic design standards to minimize the long-term risks to the system.

The OMF is located in an area that has a high potential for soft soils and seismic hazards. Due to the presence of the soft silt and loose sand layers in the estuarine and beach deposits, the OMF would be prone to seismic-related ground-shaking, fault displacement, ground liquefaction, and excessive settlement (both static and seismic-induced settlements). The project will be designed to meet applicable seismic standards and use driven structural piles, and they are not expected to result in substantial long-term operational risk.

Geotechnical and archaeological borings are included as part of the project in order to provide information and assess the soil conditions along the TLE alignment and near the proposed OMF expansion site. Borings would vary in depth from about 10 to 100 feet and information would be used to assist design to minimize geologic risk.

U. Water Quality

Does the project have the potential to impact water quality?

☐ **No**

☒ **Yes, describe potential impacts and best management practices that will be in place.**

Existing drainage structures disturbed by the TLE alignment would be replaced to meet applicable standards. The OMF would involve constructing new drainage structures in accordance with current City of Tacoma requirements. The TLE alignment is not located in proximity to any surface water. Groundwater depths are generally greater than 27 feet, which is deeper than the anticipated construction depth along the TLE alignment. Groundwater has been found about 3 to 5 feet beneath the surface at the Sound Transit Tacoma Trestle project site located immediately south of the proposed OMF expansion site. In addition, there are artesian wells, which is groundwater under pressure and when tapped rises to the surface, located about 40 feet beneath the surface. At the OMF site steel piles would be required to construct the OMF expansion which would be driven to depths up to 100 feet.

Will there be an increase in new impervious surface or restored pervious surface?

☐ **No**

☒ **Yes, describe potential impacts and proposed treatment for stormwater runoff.**

The new alignment and the OMF expansion site are located within areas that consist entirely of impervious surfaces. The existing impervious surfaces would remain after construction of the project, and the TLE does not include any components that would be considered pollutant-generating. The project does result in a minor increase in impervious surfaces as a result of the construction of the TPSS sites. Up to five TPSSs would be required, and all of the proposed sites are covered with pervious surface. The design would result in an increase of less than 0.1 acres of impervious surface, and this minor increase is not anticipated to result in impacts or require any new stormwater facilities. Drainage would be directed to existing structures.

Is the project located in the vicinity of an EPA-designated sole source aquifer (SSA)?

☐ **No**

☒ **Yes, provide the name of the aquifer which the project is located in and describe any potential impacts to the aquifer. Also include the approximate amount of new impervious surface created by the project. (May require completion of SSA worksheet.)**

The project is located within the Central Pierce County Sole-Source Aquifer. Constructing the OMF expansion would require approximately 90 to 120 driven piles because of area soils. The Sound Transit Tacoma Trestle Track and Signal Project has analyzed the potential for impacts to the aquifer with regards to contamination as a result of pile-driving.[4] The analysis included a description of the subsurface conditions, including soil and groundwater, existing research on potential contamination migration, and how different pile types could impact the aquifer. The analysis concluded that, with the appropriate piles, open- or closed-end steel pipe which Sound Transit has committed to implementing, and the upward pressure of groundwater as a result of

[4] Shannon & Wilson, Inc. 2014. *Potential Contamination Migration Due to Pile Driving*. Prepared for David Evans and Associates.

the artesian groundwater (which is under pressure and, when tapped, rises to the surface), impacts from contamination migration are unlikely. FTA coordinated with the Environmental Protection Agency (EPA) for review and confirmation of this evaluation. Refer to Attachment F, Sole Source Aquifer Checklist.

V. Wetlands

Does the proposal temporarily or permanently impact wetlands or require alterations to streams or waterways?

☒ **No**

☐ **Yes, describe potential impacts**

The TLE project is located within an urbanized environment; the alignment is located within the existing city street right-of-way, and the OMF expansion site is a fully developed parcel that consists of a warehouse and parking lot.

CONSTRUCTION

W. Construction Impacts

Describe the construction plan and identify impacts due to construction noise, utility disruption, debris and spoil disposal, and staging areas. Address air and water quality impacts, safety and security issues, and disruptions to traffic and access to property.

The following provides information related to temporary impacts associated with the construction of the TLE. Mitigation measures to minimize or avoid any construction impacts are identified in Section Z. Because Sound Transit would adhere to all federal, local, and state regulations, and would implement BMPs as well as the mitigation measures identified below, no adverse impacts during construction are anticipated.

Construction of the project would last up to 3 years, but construction disturbance would not occur in the same area over that entire duration. During final design a work=specific construction plan would be developed to establish the construction schedule, estimated duration, and appropriate sequencing. For the most part, trackway construction is similar to typical road construction. Because the alignment is located in the existing right-of-way, no demolition of existing structures is required, and the first phase of construction would include any required utility relocations prior to installing the trackway. The trackway would typically be constructed in 4- to 8-block sections and the main trackway construction within this area would last for about 4 to 6 weeks. The construction process would involve first removing existing pavement, and then placing the tracks, pouring concrete around the tracks, matching the slab to the existing roadway, and repaving and restriping the roadway. During the trackway construction the station platform and any needed utilities for the station could be installed, but the installation of the shelter and station amenities would occur later in the construction process. The overhead contact system poles and span wire to power the Tacoma Link vehicles would be installed after construction of the trackway and station platforms.

The existing OMF and other current Sound Transit property in the area of the existing OMF would be used for construction staging in addition to any construction staging within the existing roadway right-of-way where construction activities are ongoing. Any additional potential staging areas needed for construction, equipment storage, construction materials

delivery and storage, contractor trailers, and construction crew parking would be identified during final design, and the contractor would lease property required for staging. Construction of the project would require commonly used construction equipment including dump trucks, saw cutters, cement mixers, concrete pumps, loaders, pavers, and vibratory equipment.

To allow for the trackway construction, roadway closures, lane closures, and detours would be needed. Roadways could be fully or partially closed, limiting access and requiring detours that could cause minor delays in emergency response times. Prior to construction, Sound Transit would coordinate with public service providers on required detour routes and lane closures in order to minimize increases in travel and response times. Roadway or lane closures needed would be established in order to maintain access to adjacent residences and businesses as necessary. If access closures are needed, these would be short-term, and Sound Transit would coordinate the closures with affected businesses and residents. Property access to residences and businesses would be maintained to the extent possible. If access to a property cannot be maintained, the specific construction activity would be reviewed to determine if it could occur during nonbusiness hours, or if the parking and other activities (for example deliveries) could be provided at an alternative location. Sidewalks and crosswalks would generally be maintained so pedestrians can safely walk through the construction areas. Protected sidewalks next to the construction area would be provided where possible when pedestrian detours are not feasible. Access through construction zone would meet applicable federal, state and local regulations including the Americans with Disabilities Act (ADA).

Trucks and other construction equipment would generally use the roadway along the alignment to access the site. Prior to construction, a Traffic Control Plan would be developed to address roadway and lane closures, including information on the location of any signed detour routes and haul routes. The Traffic Control Plan would need approval from Sound Transit and the City of Tacoma.

Construction activities would result in temporary increases in dust, noise, vibration, and visual impacts. These impacts include emissions and noise from construction vehicles and equipment, and the presence of the equipment that could affect the visual setting for viewers adjacent to construction activities. BMPs appropriate to the context would be developed and implemented prior to construction to minimize the effects of dust and noise, and no adverse impacts are anticipated. Construction activities would typically occur during the hours from 7 a.m. to 9 p.m. during weekdays and from 9 a.m. to 9 p.m. if weekend construction is required. According to City of Tacoma regulations, construction noise is exempt from regulation during these hours. Nighttime construction would require a noise variance from the City of Tacoma, which would be obtained prior to any nighttime construction. Project-related vibration sources include excavators, haul trucks, flat bed tractor-trailers, backhoes, cranes, jackhammers, and pile-drivers. The vibration sources associated with the project are not expected to cause any structural damage, even though they are likely to be noticeable to residents when construction is nearby. There are no threatened and endangered species, wetlands, streams, or habitat located in the area where construction would occur, so no impacts are anticipated. Temporary construction impacts on historic buildings and structures can include temporary loss of access, visual effects, noise, vibration, and the dust and debris of construction activities; however, no structural damage or adverse effects on historic properties are anticipated from project construction.

Ground disturbance may also encounter contaminated soils or groundwater, but the potential

is low especially along the alignment expansion given that there are no known sites within the City of Tacoma right-of-way, none of the proposed property acquisitions are associated with known sites, and the depth to groundwater along the alignment is low. At the OMF expansion site, because of the soil conditions, geotechnical investigation would be conducted. For all property acquisitions a Phase 1 environmental site assessment, and if required a Phase 2 environmental site assessment, would be conducted prior to construction. Prior to construction, plans would be developed to address the proper handling and disposal of any hazardous materials found during construction of the alignment and the OMF expansion.

During construction, soil-disturbing activities would expose soil, and construction equipment could leak fluids. Soil and construction equipment leaks could be exposed to precipitation during construction, which could temporarily affect stormwater quality. As part of the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit that would be required for the project, Sound Transit would prepare a stormwater pollution prevention plan (SWPPP) that prescribes how to protect downstream water resources from construction-related pollutants. The SWPPP would provide best management practices (BMPs) to control sediment and other pollutants from the project site in accordance with City and State requirements.

CUMULATIVE AND INDIRECT

X. Cumulative and Indirect Impacts

Are cumulative and indirect impacts likely?

☐ **No**

☒ **Yes, describe the reasonably foreseeable:**

a) Cumulative impacts result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes them. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

No significant adverse cumulative impacts are anticipated from the TLE project. Constructing the project along with constructing other planned projects in the downtown Tacoma area could result in cumulative impacts. Other planned projects in the project area that could be under construction include:

- Tacoma Trestle
- Thea Foss – Public Parking – 15th and Hood
- Schuster Parkway Trail
- Prairie Line Trail Phase 1
- 17th Street Extension and UWT Improvements

The Tacoma Trestle is located adjacent to the project's OMF expansion site. Tacoma Trestle Project construction is expected to be completed by the time that the TLE begins construction; therefore, cumulative construction impacts (e.g., noise, dust, street closures) are not anticipated.

The Tacoma Trestle Project and the TLE would both include piles near the TLE OMF site. The 90 to 120 additional piles associated with the TLE would not result in any additional impacts to the sole-source aquifer in this area; therefore, cumulative operational period impacts to the aquifer are not anticipated. As noted in Section I, Historic and Cultural Resources, an eligible

site has been found about 60 to 65 feet beneath the surface on the Tacoma Trestle site south of the proposed OMF expansion site. The piles associated with the OMF expansion site could have a cumulative impact if the site extends to the OMF expansion site. The PA stipulates that, an Archaeological Plan would be developed and archaeological borings conducted to determine if there is a potential impact, and if a finding of adverse effect were determined an amendment to the PA would be developed to resolve the adverse effects. The other projects listed above are not adjacent to the TLE, nor do they cross the TLE alignment.

No development projects that are currently in the permitting process were identified.

b) Indirect impacts, which are caused by the action but are later in time or farther removed in distance, yet are still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air, water and other natural systems, including ecosystems.

The TLE is anticipated to result in positive indirect impacts related to economic development and potential transit oriented development (TOD) near the station locations. The project would be consistent with City planning efforts and would support the development of mixed use as desired by the City in the Hilltop and North Downtown Subareas. The project could create a new market for TOD opportunities along the project corridor, which would support economic development and result in beneficial effects related to employment opportunities for those in the project corridor. TOD development in the project corridor would also provide housing and development consistent with City plans and growth projections for the area.

The TLE would not directly induce population growth, since it is planned to serve existing developed areas, but it could provide opportunities for a mix of uses and increased densities in the station areas to support Tacoma's planned growth. For any future TOD or other economic development would undergo separate environmental review, as appropriate.

PUBLIC INVOLVEMENT

Y. Public Involvement

Describe public outreach efforts undertaken on behalf of the project. Indicate opportunities for public meetings (e.g. board meetings, open houses, special hearings). Indicate any significant concerns expressed by agencies or the public regarding the project.

For the TLE project, Sound Transit developed a Public Involvement Plan (PIP) that identifies key messages and outreach strategies and tactics for the project's early design and environmental phase. The public has generally been very supportive of this project, and there is no substantial controversy in the community. Beginning in 2010, the TLE was developed based on extensive outreach and input by public and jurisdictional stakeholders. This includes the formation of a Stakeholder Group as well as a Technical Advisory Committee to guide project development. The City of Tacoma and Sound Transit also reached out to the community in the following ways: 18 open houses or drop-in sessions throughout Tacoma, three postcard mailings, two online surveys, community group briefings, eight festivals fairs and markets, online and print advertisements, social media, project website, announcements, emails to listserv, media advisory, and announcements to social service providers and environmental justice organizations. Sound Transit would continue to reach out and provide information to the public and stakeholders as the project moves through early design and later through project final design and development stages.

MITIGATION MEASURES

Z. Mitigation Measures

Describe all measures to be taken to mitigate project impacts.

The following provides information on the measures that will be implemented during TLE construction and operation to minimize or avoid impacts.

Construction Mitigation

Sound Transit will follow all relevant federal, state, and local regulations. Appropriate BMPs will also be developed and implemented prior to construction for water quality, erosion, hazardous materials, and air quality. Complying with the relevant regulations and implementing BMPs will minimize construction impacts related to dust, noise, and light. The following measures will be implemented as part of the project to avoid or minimize impacts during construction:

Traffic

Prior to construction, Sound Transit would finalize detailed construction plans in coordination with the City of Tacoma during the final design and permitting phases of the project. All mitigation measures associated with constructing the TLE would comply with local regulations governing construction traffic control and construction truck routing. Potential mitigation measures for traffic impacts during construction would include the following practices, as appropriate:

- Conform to jurisdictional agency requirements for all traffic plan maintenance.
- Use lighted or reflective signage to direct drivers to truck haul routes to ensure visibility during nighttime work hours.
- Communicate public information through tools such as print, radio, posted signs, web sites, and email to provide information regarding any required street closures, hours of construction, business access, and parking impacts. Sound Transit would provide this plan.
- Coordinate access closures with affected businesses and residents. The contractor would be required to perform this task in coordination with Sound Transit staff. If access closures are required, then property access to residences and businesses would be maintained to the extent possible. If access to the property could not be maintained, then the specific construction activity would be reviewed to determine whether it could occur during nonbusiness hours or if the parking spaces and users of the affected access (for example, deliveries) could be provided at an alternative location.
- Provide protected sidewalks next to the construction area where possible when pedestrian detours are not feasible. Access through the construction zone would meet applicable federal, state and local regulations including the Americans with Disabilities Act (ADA).
- Provide detour, open for business, and other signage as appropriate.
- Post advance notice signs prior to construction in areas where surface construction activities would affect access to surrounding businesses.
- Provide regular updates to schools, emergency service providers, local agencies, solid waste utilities, and postal services, and assist public school officials in providing advance and

ongoing notice to students and parents concerning construction activity near schools.

- Schedule traffic lane closures and high volumes of construction truck traffic during off-peak (including school peak) hours to minimize delays during periods of higher traffic volumes as much as possible.
- Cover potholes and open trenches, where possible, and use protective barriers to protect drivers from open trenches.
- Encourage contractors to lease parking lots and/or identify temporary parking areas when on-street parking is closed.

The following measures would provide public information through tools such as print, radio, posted signs, websites, and e-mail regarding partial street closures, hours of construction, business access, and parking impacts to minimize or limit impacts on businesses during construction

- Sound Transit would dedicate staff to work specifically with affected businesses. Construction mitigation plans would be developed to address the needs of businesses during construction and could include, but are not limited to, the following elements:
    - Provide a 24-hour construction telephone hotline
    - Provide business cleaning services on a case-by-case basis
    - Provide detour, open for business, and other signage as appropriate
    - Establish effective communications with the public through measures such as meetings and construction updates, alerts, and schedules.
    - Establish promotion and marketing measures to help affected business districts maintain their customer base to the extent possible during construction.
    - Maintain access as much as practical to each business and coordinate with businesses during times of limited access.
    - Provide a community ombudsman as a contact person for citizens to present unresolved complaints about construction impacts to agency leadership.

<u>Aesthetics</u>

- If nighttime construction is required, then use shielding and direct downward construction lighting to avoid light spillover on adjacent properties especially residential uses.

<u>Air Quality</u>

Controlling fugitive dust emissions would require some of the following actions, as appropriate:

- Spray exposed soil with water or other dust suppressant to reduce emissions of PM_{10} and deposition of particulate matter during dry periods.
- Use phased development to keep disturbed areas to a minimum.
- Use wind fencing to reduce disturbance to soils.
- Minimize dust emissions during transport of fill material or soil by wetting down or by ensuring adequate freeboard (space from the top of the material to the top of the truck bed) on trucks.

- Promptly clean up spills of transported material on public roads.
- Schedule work tasks to minimize disruption of the existing vehicle traffic on streets.
- Restrict traffic onsite to reduce soil upheaval and the transport of material to roadways.
- Locate construction equipment and truck staging areas away from sensitive receptors as practical and in consideration of potential impacts on other resources.
- Provide wheel washers to remove particulate matter that would otherwise be carried offsite by vehicles to decrease deposition of particulate matter on area roadways.
- Cover dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris.
- Minimize odors onsite by covering loads of hot asphalt.

Noise

The following noise control mitigation to meet local regulatory requirements, noise ordinances, and permit or variance conditions would be used as part of construction, as needed:

- Install construction site noise barrier or wall by noise-sensitive receivers where appropriate.
- Use smart backup alarms during nighttime work that automatically adjust, lower the alarm level or tone based on the background noise level, or switch off back-up alarms and replace with spotters.
- Use low-noise emission equipment.
- Implement noise-deadening measures for truck loading and operations.
- Monitor and maintain equipment to meet noise limits.
- Use lined or covered storage bins, conveyors, and chutes with sound-deadening material.
- Use acoustic enclosures, shields, or shrouds for equipment and facilities.
- Install high-grade engine exhaust silencers and engine-casing sound insulation.
- Limit aboveground jack-hammering and impact pile-driving during nighttime hours.
- Minimize the use of generators or use whisper quiet generators to power equipment.
- Limit use of public address systems.
- Use movable noise barriers at the source of the construction activity.
- Limit or avoid certain noisy activities during nighttime hours near residential areas.

Vibration:

The following precautionary vibration mitigation strategies will be considered, as appropriate, to minimize potential construction vibration:

- Pre-construction survey—Prior to beginning construction, a survey of the first row of vibration sensitive buildings adjacent to the alignment would be completed during final design.
- Vibration limits—The Construction Contract Specifications would apply the appropriate FTA construction vibration criteria for building damage to all buildings adjacent to construction activities.

- Vibration monitoring—The contractor would be required to monitor vibration from high-vibration construction activities at the closest representative building where lower vibration limits for building damage are applicable and at representative locations where complaints of annoyance from vibration are received from building occupants.
- Alternative construction procedures—If high-vibration construction activities must be performed close to vibration sensitive structures and there is potential for exceedance of the construction limits, the contractor would be required to use an alternative procedure that produces lower vibration levels.

Hazardous Materials

- Although no impacts are anticipated, BMPs would include contractors preparing project-specific and site-specific hazardous material management plans, health and safety plans, contaminated media management plans, and spill prevention, control, and countermeasures plans. In addition, the contractor will be required to develop and comply with the stormwater pollution prevention plan (SWPPP).

Historic and Cultural Resources

- As specified in the Programmatic Agreement (PA), as approved by FTA, DAHP, and Sound Transit, an Archaeological Plan would be prepared specifically for the TLE to address procedures and protocols to be followed related to the geotechnical borings at the OMF expansion site and the project corridor. The Archaeological Plan would include a preconstruction/survey plan at the proposed OMF expansion site where an adjacent archaeological site has been recorded and determined eligible for the NRHP. Results of the geotechnical borings would be used to determine the need for any additional investigations should the eligible site extend into the OMF construction site. The Archaeological Plan would also include protocols for the project corridor outside of the OMF including the review of geotech bores by a qualified archaeologist to determine if additional monitoring along the project corridor is warranted during construction. The Archaeological Plan will also include an Unanticipated Discovery Plan (UDP). The UDP will provide procedures should an archaeological site be discovered during construction.

  If historic resources are discovered, and FTA, in consultation with DAHP, determines that the Project would adversely affect the resources, then the parties would work together to develop a mitigation plan. An amendment to the PA would be prepared, documenting the resource's eligibility and approach to resolve the adverse effect. If no historic resources are discovered and FTA, in consultation with DAHP, determines no adverse effect, then the Section 106 consultation is complete.

Property Acquisition

- Sound Transit would compensate affected property owners according to the provisions specified in Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines (Resolution #R98-20-1). Sound Transit would comply with the provisions of the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (CFR 24, as amended, and the State of Washington's relocation and property acquisition law and regulations (ch. 468-100 WAC and ch. 8.26 RCW). Benefits would vary depending on the level of impact and other factors.

Public Services

- Sound Transit would coordinate with public service providers before and during construction to maintain emergency access.

Utilities

- Sound Transit would coordinate with utility providers and the public. Preconstruction measures will include potholing and survey to identify utility locations.
- Sound Transit would continue to work with utility providers to minimize any potential service interruptions and perform outreach to notify the public of planned or potential service interruptions and utility relocations.

Water Quality and Seismic and Soils

- Additional geotechnical studies will be performed during final design, and if required, construction techniques and mitigation measures would be refined to avoid potential impacts and geologic risks.
- The project would comply with the NPDES Construction Stormwater General Permit process, including developing a SWPPP and temporary erosion and sediment control plan. The SWPPP will provide BMPs to control sediment and other pollutants from the project site in accordance with City and State requirements and protect downstream water resources from construction pollutants.
- Pile types for the OMF expansion site would be selected to ensure that potential contamination migration into the sole-source aquifer is unlikely. Sound Transit would commit to soil testing and either open or closed-end steel pipe piles for construction.

Operation Mitigation

Transportation:

All intersections will operate at LOS E or better, therefore, no mitigation is required. However, to improve traffic operations improvements could include adjusting signals that would provide more green time to side streets or changes to signal phasing for automobile and truck traffic. Sound Transit and the City of Tacoma would coordinate the need for any changes and the associated costs. Measures to address loss of parking will require coordinating with the City of Tacoma. Coordination would determine if replacement on-street parking can be developed including the conversion of existing on-street parallel parking to angle parking to create additional parking opportunities, where feasible. Other measures such as enhanced signage and outreach to promote the use of existing private parking garages and lots including the structures at the hospitals, parking control measures that would promote parking turnover. , and converting existing on-street parallel parking along MLK Jr. Way by Tacoma Multicare to ADA parking to replace removed ADA parking to allow station platforms. In addition, Sound Transit would work with employers in downtown Tacoma to promote the use of alternative transportation services including riding TLE to reduce parking demand.

Noise:

If wheel squeal is identified during pre-revenue service testing, or during operation, track lubrication or other measures would be implemented.

Vibration:

As noted in Section H (Noise and Vibration), some sections along MLK Jr. Way that have older wooden buildings adjacent to the alignment may require special (low-vibration) track design to avoid impacts under applicable FTA criteria. To verify these results, additional site-specific vibration propagation tests would be performed during final design to determine whether there are vibration impacts according to FTA criteria at sensitive receivers along the alignment and if special (low-vibration) track design should be implemented.

No other mitigation measures would be required during operation of the TLE.

FEDERAL, STATE, AND LOCAL ACTIONS, POLICIES AND ORDINANCES

AA. Other Federal Actions

Provide a list of other federal NEPA actions related to the proposed project or in the vicinity.

- Sound Transit Tacoma Trestle DCE (2013)
- Tacoma/Pierce County HOV Program Environmental Assessment (2010)
- City of Tacoma Pacific Avenue Streetscape Project DCE (2011)
- Point Defiance Bypass Project Environmental Assessment (2013)

In addition to NEPA actions, Sound Transit prepared the Tacoma Link SEPA EIS (1999) for the original Tacoma Link Project. In addition to the federal NEPA actions the City of Tacoma has adopted or is in the process of adopting the following subarea plans that identify the TLE:

- North Downtown Subarea Plan (Adopted October 2014)
- Hilltop Subarea Plan (Adopted May 2014)

AB. State and Local Policies and Ordinances

Is the project in compliance with all applicable state and local policies and ordinances?

☐ **No, describe noncompliance:**

☒ **Yes**

The TLE project is consistent with state and local land use plans and is identified in the recently adopted Hilltop Subarea Plan,[5] as well as the North Downtown Subarea Plan.[6] The TLE project is in the Statewide Transportation Improvement Program and the Metropolitan Transportation Plan. The project is specifically identified in Transportation 2040 (Transportation 2040 ID No. 5459) and is already included in the Regional and State Transportation Improvement Program (PSRC TIP ID No. RTA-81). TLE is being incorporated into the subarea plans by the City of Tacoma and is a key part of the mobility chapter of the North Downtown Subarea Plan. The Hilltop Subarea Plan describes the TLE as an opportunity for transportation improvements and place-

[5] City of Tacoma. 2014b. *Hilltop Subarea Plan.* Available at http://cms.cityoftacoma.org/planning/hilltop-mlk%20subarea/Hilltop%20Subarea%20Plan%20(adopted%205-13-14).pdf. Prepared by VIA Architecture. May 13.

6 City of Tacoma. 2014a. North Downtown Subarea Plan. Available at http://cms.cityoftacoma.org/planning/north%20downtown%20subarea/North%20Downtown%20Subarea%20Plan%20(10-14-14).pdf. Prepared by VIA Architecture. May.

making in the Hilltop subarea.

AC. Related Federal and State/Local Actions

- ☐ Corps of Engineers Permit (Section 10, Section 404)
- ☐ Coast Guard Permit
- ☐ Coastal Zone Management Certification
- ☐ Critical Area Ordinance Permit
- ☒ ESA and EFH Consultation
- ☐ Floodplain Development Permit
- ☐ Forest Practice Act Permit
- ☐ Hydraulic Project Approval
- ☒ Local Building or Site Development Permits
- ☐ Local Clearing and Grubbing Permit
- ☒ National Historic Preservation Act-Section 106 consultation
- ☒ National Pollutant Discharge Elimination System General Construction Permit
- ☐ Shoreline Permit
- ☐ Solid Waste Discharge Permit
- ☒ Sole Source Aquifer Consultation
- ☐ Section 4(f) (Historic or Recreational Properties; Wildlife Refuges)

See Section 4(f) in Section I, Historic and Cultural Resources.

- ☐ Section 6(f) (Recreational Properties)
- ☒ Section 106 (Historic Properties)
- ☒ Stormwater Site Plan (SSP)
- ☒ Temporary Erosion and Sediment Control Plan (TESC)
- ☐ Water Rights Permit
- ☐ Water Quality Certification—Section 401
- ☒ Tribal Consultation or Permits (if any, describe below)
- ☐ Other

Others (describe as applicable):

Submitted By (name, title):	**Date:**

ATTACHMENT A

Purpose and Need Statement

Purpose and Need Statement

The overall purpose of the TLE Project is to improve mobility and access to the regional transit system for Tacoma residents, employees, and visitors by connecting the existing Tacoma Link system with Tacoma's major employment and activity centers as well as other destinations. The project will serve traditionally underserved populations in Tacoma. The project also will provide an economic benefit to the city as a cost-effective and environmentally sensitive investment. Specifically, the project will accomplish the following:

- **Meet the rapidly growing connectivity needs of the corridor and the region's future residents and workers** by increasing mobility, access, and transportation capacity to and from regional growth and activity centers in Tacoma and the rest of the region, as called for in the region's adopted plans, including the PSRC's VISION 2040 and Transportation 2040,[7] the 2012 Countywide Planning Policies for Pierce County, Washington,[8] as well as related county and city comprehensive plans.
- **Link downtown with other growth centers in the city and encourage economic development within those areas.** The City of Tacoma's Comprehensive Plan[9] includes policies that specify the City's intention to locate major residential and employment growth in Mixed-Use and Manufacturing/Industrial Centers. Expanding Tacoma Link to these centers will encourage denser, more transit-oriented development and further concentrate higher-wage manufacturing and industrial jobs. This will provide greater opportunities to reduce the number of vehicle miles traveled as commute trips.
- **Serve underserved communities and neighborhoods within the City of Tacoma.** Underserved communities and neighborhoods are defined as those that meet all of the following criteria:
- Have received proportionately fewer infrastructure investments in the past 10 years than other areas of Tacoma
- Have a greater proportion of minority or low-income residents than the city as a whole
- Contain vacant and/or underutilized parcels that could be redeveloped to be transit-supportive
- Support the land use planning goals of the North Downtown Subarea Plan,[10] the MLK Subarea Plan[11] and the other Growth and Employment centers. The City of Tacoma is currently undertaking planning processes for the North Downtown subarea and has recently completed planning for the MLK Subarea. Both planning processes are designed to encourage transit-oriented, mixed-use development and economic revitalization in areas of Tacoma that are designated for future regional growth concentrations. Expanding Tacoma Link within either or both of these areas will help to

---

[7] Puget Sound Regional Council (PSRC). 2010. *Transportation 2040*. Available at http://www.psrc.org/transportation/t2040/. Accessed September 2013. Seattle, Washington.

[8] Pierce County Regional Council. 2012. Countywide Planning Policies for Pierce County, Washington. Available at https://www.co.pierce.wa.us/DocumentCenter/View/6998. August 27.

[9] City of Tacoma. 2002. *Comprehensive Plan*. Adopted December 3, 2002. Amended July 2014. Available at http://www.cityoftacoma.org/cms/one.aspx?portalId=169&pageId=15801.

[10] City of Tacoma. 2014. *North Downtown Subarea Plan*. Available at http://cms.cityoftacoma.org/planning/north%20downtown%20subarea/North%20Downtown%20Subarea%20Plan%20(10-14-14).pdfPrepared by VIA Architecture. November.

[11] City of Tacoma. 2012. *Final MLK Subarea Plan*. Available at http://www.cityoftacoma.org/cms/one.aspx?objectId=15729. December 3.

bring those goals to fruition.

- **Support economic development in Downtown Tacoma.** The Downtown Tacoma Economic Development Strategy[12] lists the existing Tacoma Link as a key asset within Downtown Tacoma. One of the City of Tacoma's primary goals for economic development is to stimulate investor interest in downtown. The expansion of Tacoma Link presents an opportunity to achieve the City's economic development goals.
- **Serve increasing commute trips to the downtown core via transit.** The PSRC's 2002 report on the Regional Growth Centers[13] indicates that the Downtown Tacoma core contains most of the jobs within the city today and is projected to continue to do so in the future. Increasing numbers of commuters will need alternative ways to access jobs within the downtown core.
- **Reduce greenhouse gas emissions within the City of Tacoma.** The City of Tacoma has established an Office of Sustainability to implement its Climate Action Plan.[14] The plan calls for reducing greenhouse gas emissions to 40 percent below 1990 levels by the year 2020 and to 80 percent below 1990 levels by the year 2050. Transportation results in 53 percent of the greenhouse gas emissions in Tacoma. To reduce that percentage, the City has the goal of increasing the use of all public transportation modes. According to the 2010 Census, only 4 percent of workers ages 16 and older within Tacoma used public transportation to commute to work. This number will need to increase substantially if the goals of the Climate Action Plan, the North Downtown Subarea Plan, and the MLK Subarea Plan are to be met.
- Support Sound Transit's Regional Transit Long-Range Plan[15] goals and objectives
    - Help ensure long-term mobility, connectivity and convenience
    - Preserve communities and open space
    - Contribute to the region's economic vitality
    - Preserve our environment
    - Strengthen communities' use of the regional transit network

[12] City of Tacoma. 2013. Strategic Framework and Action Plan. Available at http://cms.cityoftacoma.org/cedd/CED_Main/EconDevStratFrmwk_3_2013.pdf. City of Tacoma Economic Development.

[13] Puget Sound Regional Council. 2002. Central Puget Sound Regional Growth Centers. Available at http://www.psrc.org/assets/229/growthcenters.pdf. December.

[14] City of Tacoma. 2013. Tacoma's Climate Action Plan Final Report 2008 – 2012. Available at http://cms.cityoftacoma.org/sustainability/Climate%20Action%20Plan%202012.pdf. April 9.

[15] Sound Transit. 2005. *Regional Transit Long-Range Plan*. Available at http://www.soundtransit.org/Documents/pdf/projects/seis/Long-Range_Plan_7-7-05.pdf. July 7.

ATTACHMENT B

Exhibits

TACOMA LINK EXPANSION

PROJECT VICINITY

EXHIBIT B-1

LEGEND

- Existing Stations
- Proposed Stations
- Existing Alignment
- Proposed Alignment
- Parks
- Existing Operations and Maintenance Facility Site
- Proposed Operations and Maintenance Facility Expansion Site
- TPSS Locations

0 0.125 0.25 0.5 Miles

Date: 3/17/2015

SOUNDTRANSIT RIDE THE WAVE

TACOMA LINK EXPANSION

GENERALIZED ZONING AND COMMUNITY RESOURCES

EXHIBIT B-2

Legend

- Proposed Stations
- Existing Stations
- Existing Alignment
- Proposed Alignment
- Park
- Existing Operations and Maintenance Facility Site
- Proposed Operations and Maintenance Facility Site
- TPSS Locations
- Affordable Housing
- Community Facility
- Medical Facility
- Post Office
- Public Safety
- Religious Institution
- School

0 0.125 0.25 0.5 Miles

SOUNDTRANSIT RIDE THE WAVE

TACOMA LINK EXPANSION

OMF SITE **EXHIBIT B-3**

0 75 150 300 Feet

Legend

- Existing Alignment
- Proposed Rail Extension
- Rail line
- Existing Operations and Maintenance Facility Site
- Proposed Operations and Maintenance Facility Expansion Site

SOUNDTRANSIT RIDE THE WAVE

TACOMA LINK EXPANSION

POTENTIAL HIGH RISK HAZARDOUS MATERIAL SITES

EXHIBIT B-4

Legend

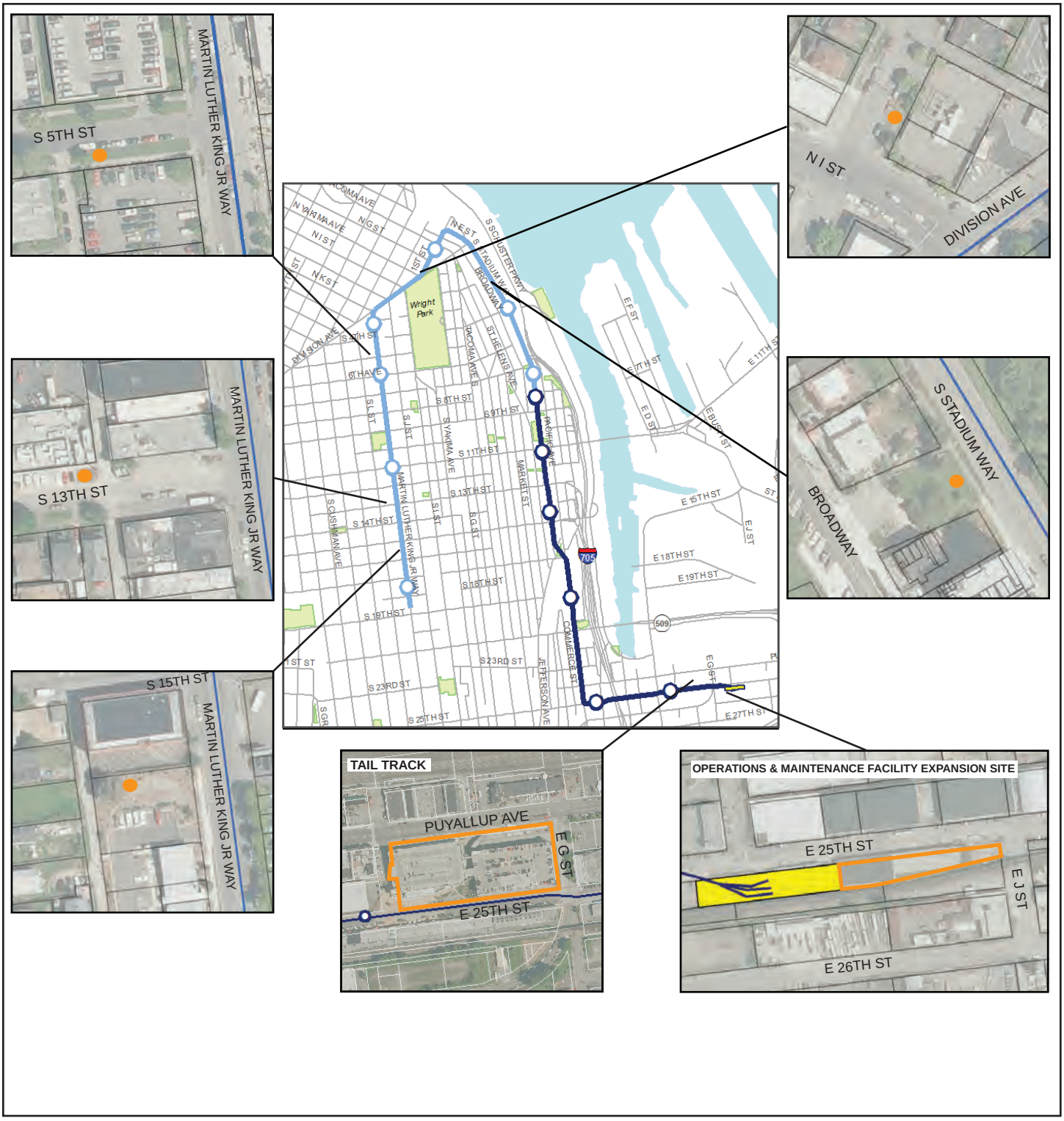
- Existing Stations
- Proposed Stations
- Existing Alignment
- Proposed Alignment
- Existing Operations and Maintenance Facility Site
- Proposed Operations and Maintenance Facility Expansion Site
- TPSS Locations
- Potential High Risk Hazardous Material Sites
- Parks

0 0.125 0.25 0.5 Miles

SOUNDTRANSIT RIDE THE WAVE

TACOMA LINK EXPANSION
PROPERTY ACQUISITIONS

EXHIBIT B-5



Legend

- Existing Stations
- Existing Alignment
- Proposed Alignment
- Proposed Stations
- Existing Maintenance & Operations Facility Site
- Parcels
- Affected Parcels
- TPSS Location (located within City of Tacoma owned right-of-way or property)

N.T.S

ATTACHMENT C

Visual Simulations

TACOMA LINK EXPANSION
KEY OBSERVATION POINTS

EXHIBIT C-1

LEGEND

- Existing Stations
- Existing Alignment
- Proposed Alignment
- Proposed Stations
- Parks
- Existing Operations and Maintenance Facility Site
- Proposed Operations and Maintenance Facility Expansion Site

0 0.125 0.25 0.5 Miles

SOUNDTRANSIT
RIDE THE WAVE

EXHIBIT C-2
Existing Condition – Looking northeast on 4th Street (KOP 1)

EXHIBIT C-3
Simulation of the Tacoma Link Expansion looking towards proposed Stadium Way/S. 4th Station area (KOP 1)

EXHIBIT C-4
Existing Condition – Looking south down Stadium Way from near Division Ave (KOP 2)

EXHIBIT C-5
Simulation of the Tacoma Link Expansion (KOP 2)

EXHIBIT C-6
Existing Condition – Looking north up MLK from 14th Street (KOP 3)

EXHIBIT C-7
Simulation of the Tacoma Link Expansion looking towards proposed MLK/S. 11th Station area (KOP 3)

EXHIBIT C-8
Existing Condition – Looking north up Commerce Street by 7th Street (KOP 4)

EXHIBIT C-9
Simulation of the Tacoma Link Expansion looking towards proposed Relocated Theater District Station area (KOP 4)

ATTACHMENT D

Air Quality Analysis

1.0 Air Quality and Greenhouse Gases

1.1 Analysis and Methodology

Air quality, which is a general term used to describe pollutant levels in the atmosphere, is affected by emissions generated by vehicular traffic related to the project. National Environmental Policy Act (NEPA) and State Environmental Policy Act (SEPA) regulations require evaluation of the effects of a proposed project on air quality.

Ambient air quality is a function of many factors, including climate, topography, meteorological conditions, and the production of airborne pollutants by natural or artificial sources. Both the federal Clean Air Act of 1970 (42 United States Code [USC] §§ 7401 et seq.) and its amendments, and the Washington State Clean Air Act (Revised Code of Washington 70.94) regulate air quality. The United States Environmental Protection Agency (EPA), the Washington State Department of Ecology (Ecology), and the local Puget Sound Clean Air Agency (PSCAA) enforce regulations developed to protect air quality within the Puget Sound Region.

EPA delegates authority to manage air quality issues to the states. In Washington state, EPA and Ecology further delegate authority to local air quality agencies. The authority to regulate air quality has been delegated to PSCAA in four counties, including Pierce County where the project is located. This Air Quality Analysis discusses potential air quality impacts associated with the Build conditions for the Tacoma Link Expansion Project.

1.2 Air Pollutants and Air Quality Standards

The major airborne pollutants of interest for transportation projects are carbon monoxide (CO), particulate matter, ozone and the ozone precursors; volatile organic compounds (VOCs); and oxides of nitrogen (NO_X). These are commonly referred to as criteria pollutants. Both federal and state standards regulate these, along with two other criteria pollutants, sulfur dioxide (SO_2) and lead. However, lead and SO_2 are no longer pollutants of concern for transportation projects since the introduction of unleaded fuel and ultra-low sulfur fuel, and therefore are not addressed in this analysis. Additionally, mobile source air toxic (MSAT) air pollutants in vehicle exhaust, particularly from diesel-fueled vehicles, have been addressed in both local and national studies. Toxic air pollutants are known or suspected to cause cancer or other serious health effects.

Washington is subject to air quality regulations issued by EPA, Ecology, and PSCAA. EPA's National Ambient Air Quality Standards (NAAQS) set limits on concentration levels of the criteria pollutants in the air. Concentration levels of the criteria pollutants must not exceed the NAAQS over specified time periods. Ecology and PSCAA monitor air quality in the Puget Sound Region by measuring the levels of criteria pollutants found in the atmosphere and comparing them with the NAAQS.

The NAAQS consist of two sets of standards: the primary standards are intended to protect public health, and the secondary standards are intended to protect the natural environment. In addition to these standards, Ecology and PSCAA have adopted state and local ambient air quality standards. Table 1 lists all of the national, state, and local air quality standards in effect for the criteria pollutants in the State of Washington.

The Puget Sound Region is currently in attainment or unclassified for all criteria pollutants except CO and particulate matter. EPA designated the Puget Sound Region as maintenance status for CO in 1996. The City of Tacoma, where the Tacoma Link Expansion would occur, is designated as nonattainment for particulate matter with a diameter smaller than 2.5 microns ($PM_{2.5}$). Exhibit 1 shows the air quality maintenance area for CO in the Puget Sound Region.

TABLE 1
National, State, and Local Ambient Air Quality Standards

Pollutant	National (NAAQS)		Washington State	Puget Sound Region
	Primary	Secondary		
Nitrogen Dioxide				
Annual Average (ppm)	0.053	0.053	0.05	0.05
1-Hour Average (ppm)	0.100	0.100	NS	NS
Carbon Monoxide				
8-Hour Average (ppm)	9	NS	9	9
1-Hour Average (ppm)	35	NS	35	35
Ozone				
8-Hour Average (ppm)	0.075	0.075	NS	NS
Lead				
Maximum Arithmetic Mean (µg/m^3) (averaged over rolling 3 months)	0.15	0.15	NS	1.5
Sulfur Dioxide				
Annual Arithmetic Average (ppm)	NS	NS	0.02	0.02
24-Hour Average (ppm)	NS	NS	0.10	0.10
3-Hour Average (ppm)	NS	0.5	NS	NS
1-Hour Average (ppm)	0.075	NS	0.40	0.40
Particulate Matter (PM_{10})				
24-Hour Average (µg/m^3)	150	150	150	150
Particulate Matter ($PM_{2.5}$)				
Annual Arithmetic Average (µg/m^3)	12	15	NS	NS
24-Hour Average (µg/m^3)	35	35	NS	NS

Source: http://www.epa.gov/air/criteria.html. (last accessed July 2014)
µg/m^3 = micrograms per cubic meter

NS = no standard established
$PM_{2.5}$ = particulate matter smaller than 2.5 microns in diameter
PM_{10} = particulate matter smaller than 10 microns in diameter
ppm = parts per million

1.3 Affected Environment

The Tacoma Link Expansion is located in an area within the Puget Sound Region that is classified as maintenance status for CO and nonattainment for $PM_{2.5}$.

The Puget Sound area has a relatively mild, marine climate with cool summers and mild, wet, and cloudy winters. Within the project area, weather conditions such as temperature, fog, rain, and snowfall can vary within short distances, influenced by such factors as the distance from Puget Sound, the rolling terrain, and air from the ocean moving inland.

EXHIBIT 1
Air Quality Maintenance Areas (Source: Puget Sound Regional Council)

Although the Puget Sound area is some of the most densely populated and industrialized land in Washington, there is sufficient wind most of the year to disperse air pollutants released into the atmosphere. Air pollution is usually most noticeable in the late fall and winter, under conditions of clear skies, light wind, and a sharp temperature inversion. Temperature inversions occur when cold air is trapped under warm air, preventing vertical mixing in the atmosphere. Inversions can last several days and can prevent pollutants from being dispersed by the wind. Inversions are most likely to occur during the months from October through February. If poor dispersion persists for more than 24 hours, the PSCAA can declare

an "air pollution episode" or local "impaired air quality."

Ecology operates ambient air quality monitoring stations to assess the levels of regulated pollutants and to verify continued compliance with the NAAQS. Two Tacoma, Washington, stations are located close to the project area. In addition, data were gathered from the NW AIRQUEST database based on a centralized coordinate within the project. NW AIRQUEST compiles design ambient background values for all criteria pollutants for the entire State of Washington based on monitoring values from 2009 through 2011. Ambient air concentrations of the monitored pollutants over various years are summarized in Table 2.

TABLE 2
Ambient Criteria Pollutant Concentration Levels Measured from 2008 to 2010

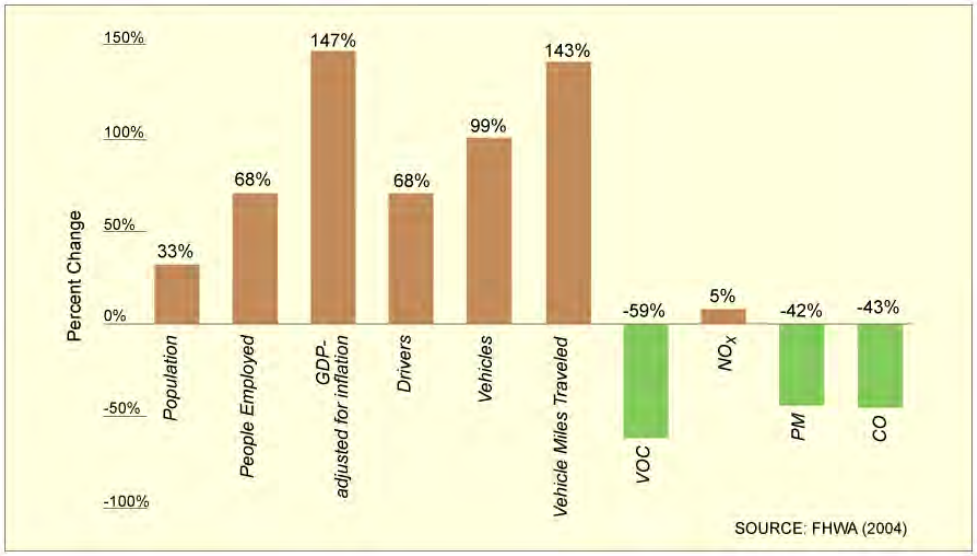
		Ecology/EPA Stations			NW AIRQUEST[3]	
Monitoring Location	**Parameter**	**Maximum Concentration**			**Design Concentrations**	**NAAQS**
Particulate Matter (PM_{10})		2005	2006	2007		
Tacoma - Alexander Ave[1]	24-Hour Average (µg/m^3)	NA	60	64	70	150
Particulate Matter ($PM_{2.5}$)		2011	2012	2013		
Tacoma-Alexander Ave[2]	Annual Arithmetic Mean (µg/m^3)	7.6	7.6	9.1	8.2	12
	24-Hour Average (µg/m^3)	25.7	52.9	37.5	34	35
Carbon Monoxide		2003	2004	2005		
Tacoma - Pacific Ave/1101 Pacific Ave[1]	8-Hour Average (ppm)	5.7	5	4.6	2.193	9
	1-Hour Average (ppm)	13.7	7	6.6	3.249	35
Ozone						
NW AIRQUEST[3]	Max 8-Hour Average (ppm)				0.053	0.075
Nitrogen Dioxide						
NW AIRQUEST[3]	Annual Arithmetic Average (ppm)				0.013	0.053
	1-Hour Average (ppm)				0.052	0.100
Sulfur Dioxide		1997	1998	1999		
Tacoma-Alexander Ave[2]	Annual Arithmetic Average (ppm)	0.006	0.006	0.006	0.002	0.02
	24-Hour Average (ppm)	0.018	0.027	0.022	0.0043	0.10
	3-Hour Average (ppm)	0.077	0.090	0.050	0.014	0.40
	1-Hour Average (ppm)	0.114	0.185	0.078	0.02	0.075

Source:
1) EPA Air Data at http://www.epa.gov/airdata/ad_maps.html
2) Washington Ecology at https://fortress.wa.gov/ecy/enviwa/
3) NW AIRQUEST at http://lar.wsu.edu/nw-airquest/lookup.html (latitude: 47.25115, longitude : -122.4405)
ppb = parts per billion
NA = no data available

Emission projections and ongoing monitoring throughout the Puget Sound Region over the past decade indicate that the ambient air pollution concentrations for CO have been decreasing. Measured ozone

concentrations, in contrast, have remained fairly static. The decline of CO is primarily a result of improvements made to emission controls on motor vehicles and the retirement of older, higher- polluting vehicles. Based on national data, Exhibit 2 shows the progress that has been made in reducing emissions from motor vehicles in comparison to the changes in other demographics, such as population, over the same period.

EXHBIT 2
Percent Change in Amount of Vehicle Emissions Compared to Demographics and Transportation (1970 to 1999)



1.4 Conformity Requirements

In Washington state, transportation projects that are located in maintenance and nonattainment areas must meet the conformity requirements set out in the federal Clean Air Act (implemented by EPA regulations 40 Code of Federal Regulations [CFR] Parts 51 and 93) and the Washington Clean Air Act. The Tacoma Link Expansion is subject to these conformity requirements because it is a transportation project that is located in a maintenance area for CO and a nonattainment area for $PM_{2.5}$.

In nonattainment and maintenance areas, the federal Clean Air Act and the Washington Clean Air Act require transportation projects to conform to the State Implementation Plan (SIP), the state's plan for meeting and maintaining compliance with the NAAQS. Conformity with the SIP means that transportation activities will not produce new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS.

In addition, the state's Growth Management Act requires that "regionally significant" projects be included in the Regional Transportation Plan (RTP) and the Transportation Improvement Program (TIP). The project is included in the RTP, *Transportation 2040* (PSRC, 2010), and in the 2013-2016 TIP (PSRC, 2012). Both the RTP and TIP have been found to conform to the SIP. The TIP lists all current transportation projects in King, Kitsap, Pierce and Snohomish counties.

Because the project is in a maintenance area for CO, a project-level analysis is necessary to verify that no localized impacts would cause or contribute to a violation of the NAAQS. The analysis of impacts must evaluate whether the project meets the project-level conformity requirements for CO. The analysis must also include air dispersion modeling to calculate CO concentrations in the vicinity of selected intersections chosen based on their high level of traffic and delay. The purpose of the analysis is to demonstrate that the project would not cause a new violation or increase the frequency or severity of an existing violation of the air quality standards. The results of this analysis are discussed in the next section.

Because the project is in a nonattainment area for $PM_{2.5}$, an analysis is required to demonstrate that if the project is classified as a project of air quality concern, then a quantitative hotspot analysis would be required. However, the Tacoma Link Expansion would not be classified as a project of air quality concern and the project is in both the RTP and TIP. Therefore, the project would meet the requirements for general conformity in a $PM_{2.5}$ nonattainment area.

1.5 Analysis Requirements

Requirements of the analysis are separated into the four criteria areas outlined below. The following sections address each of these criteria individually.

- The impacts on air quality during construction were assessed qualitatively based on the expected construction activities and potential mitigation.
- The impacts of project operation were quantified by modeling CO concentrations from tailpipe exhaust in the vicinity of intersections affected by the project. A significant impact is defined as a predicted violation of an air quality standard.
- The impacts from MSATs were addressed qualitatively based on project implications on traffic volumes and potential mitigation.
- The impacts of project operation on climate change were assessed qualitatively based on project implications on traffic volumes and potential mitigation.

2.0 Construction-related Impacts

This section discusses the project impacts of construction for the Build conditions on air quality elements in the study area.

Construction would occur within the existing right-of-way and it is assumed that at least one lane of traffic would be maintained during construction or detour routes would be provided.

During construction, soil-disturbing activities, operations of heavy-duty equipment, commuting workers, and paving may generate emissions that would temporarily affect air quality. The total emissions and the timing of the emissions from these sources would vary depending on the phasing of the project and options chosen for the project.

Typical sources of emissions during construction of transportation projects include the following:

- Fugitive dust generated during vehicle movement on paved and unpaved roads, excavation, grading, and loading and unloading activities
- Dust generated during demolition of structures and pavement
- Engine exhaust emissions from construction vehicles, worker vehicles, and diesel fuel-fired construction equipment
- Increased motor vehicle emissions associated with increased traffic congestion during construction
- VOC and odorous compounds emitted during asphalt paving

The regulated pollutants of concern for the first two source types (dust) are particulate matter smaller than 2.5 microns in diameter ($PM_{2.5}$) and particulate matter smaller than 10 microns in diameter (PM_{10}). Engine and motor vehicle exhaust would result in emissions of VOCs, NO_x, $PM_{2.5}$, PM_{10}, air toxics, and greenhouse gases.

3.0 Construction Impacts Mitigation

For temporary impacts during construction, state law requires that construction site owners and/or operators take reasonable precautions to prevent fugitive dust from becoming airborne (Washington State Department of Transportation, 1999). Fugitive dust may become airborne during demolition, material transport, grading, driving of vehicles and machinery on and off the site, and wind events. Controlling fugitive dust emissions may require some of the following actions:

- Spray exposed soil with water or other suppressant to reduce emissions of PM_{10} and deposition of particulate matter during dry periods.
- Use phased development to keep disturbed areas to a minimum.
- Use wind fencing to reduce disturbance to soils.
- Minimize dust emissions during transport of fill material or soil by wetting down or by ensuring adequate freeboard (space from the top of the material to the top of the truck bed) on trucks.
- Promptly clean up spills of transported material on public roads.
- Schedule work tasks to minimize disruption of the existing vehicle traffic on streets.
- Restrict traffic onsite to reduce soil upheaval and the transport of material to roadways.
- Locate construction equipment and truck staging areas away from sensitive receptors as practical and in consideration of potential impacts on other resources.
- Provide wheel washers to remove particulate matter that would otherwise be carried offsite by vehicles to decrease deposition of particulate matter on area roadways.
- Cover dirt, gravel, and debris piles as needed to reduce dust and wind-blown debris.
- Minimize odors onsite by covering loads of hot asphalt.

Emissions of $PM_{2.5}$, $PM_{10,}$ VOCs, NO_x, SO_x, and CO would be minimized whenever reasonable and possible. Because these emissions primarily result from construction equipment, machinery engines would be kept in good mechanical condition to minimize exhaust emissions. Additionally, contractors would be encouraged to reduce idling time of equipment and vehicles and to use newer construction equipment or equipment with add-on emission controls.

4.0 Microscale Carbon Monoxide Analysis

Analyses were conducted to estimate the potential localized air quality impacts of changes in traffic conditions near heavily traveled roadways and congested intersections as a result of the Tacoma Link Expansion. Because the project area has been identified as a maintenance area for CO, a quantitative analysis of the Tacoma Link Expansion Build conditions on air quality was conducted.

Microscale CO modeling was performed using the MOVES2010b and CAL3QHC air quality dispersion models to estimate existing (2014), opening year (2020), and horizon year (2040) CO levels at selected locations. EPA's *Guideline for Modeling Carbon Monoxide from Roadway Intersections* and *Using MOVES in Project-Level Carbon Monoxide Analyses* were used as guidance in evaluation of CO hot spots in the study area (EPA, 1992 and 2010a).

Additionally, the Build condition would have intersection signal timing affected when there is an inbound Tacoma Link vehicle, outbound vehicle, and periods when the vehicle would not pass through the intersection. Therefore, the scenarios above were analyzed at each intersection for the Build condition.

4.1 Site Selection

A screening analysis was performed to identify which intersections in the study area would be adversely affected by the Tacoma Link Expansion. Intersections within the study area were screened based on changes in intersection volume, delay, and level of service (LOS) between the existing conditions and the Build alternative. Intersections were considered to be adversely affected by the Tacoma Link Expansion if the LOS decreased below D with the project. Intersections that were already below LOS D were considered to be adversely affected by the Tacoma Link Expansion if delays and/or volume increased from the No Build conditions with the Build alternative.

Based on intersection LOS, the three intersections that require further analysis for potential CO hot- spots are presented below; the following subsections summarize the methodology used to estimate the CO impacts at each intersection:

- Division Avenue/ N Tacoma Avenue
- N 1st Street/N Tacoma Avenue
- Division Avenue/N "I" Street/S "I" Street

4.2 Quantitative Carbon Monoxide Impact Analysis

Traffic data for the air quality analysis were derived from traffic counts and other information developed as part of an overall traffic analysis in the project area. Output from the Synchro6 model, a signal-timing traffic model, including LOS, peak-hour traffic volumes, and lane configurations, was used to evaluate CO impacts. The microscale CO analysis was performed based on data from this analysis for the evening (PM) peak traffic period, which is the period when maximum traffic volumes occur in the project area and when the greatest traffic and air quality impacts are expected. An annual growth factor of 0.44 percent was added to the Synchro6 model output to account for 2020 and 2040 traffic volumes.

Vehicular emissions were estimated using the EPA MOVES2010b vehicle emission simulation model[16]. Emission factors were obtained for both free-flow speeds and periods of idle for the existing year (2014), opening year (2020), and horizon year (2040). A speed of 25 miles per hour (mph) was used to represent free-flow speeds for the intersections. A speed of zero mph was used to calculate an idle emission factor in units of grams per hour (g/hr). Project-specific vehicle type distribution data were not available; therefore, default data from the MOBILE6.2 model were converted for use with MOVES. The average peak morning January temperature in Pierce County, 33.1 degrees Fahrenheit (°F), was used for the analysis. The MOVES emission factors developed for the microscale CO analysis are summarized in Table 3.

TABLE 3
MOVES Emission Factors

Vehicle Speed (mph)	2014 MOVES Emission Factor	2020 MOVES Emission Factor	2040 MOVES Emission Factor	Emission Factor Units
0 (idle)	40.2696	24.1526	14.4594	g/hr
5	15.2437	10.7251	7.76051	g/veh-mi
10	10.5783	7.81336	5.95005	g/veh-mi

16 EPA announced the release of the updated MOVES2014 model on July 31, 2014. The previous version was used because it was the most current model at the time the analysis was completed. The MOVES2010b model is anticipated to have similar results to the MOVES2014 model for carbon monoxide emissions.

TABLE 3
MOVES Emission Factors

Vehicle Speed (mph)	2014 MOVES Emission Factor	2020 MOVES Emission Factor	2040 MOVES Emission Factor	Emission Factor Units
15	9.05593	6.86749	5.36431	g/veh-mi
20	8.02744	6.16124	4.86849	g/veh-mi
25	6.85353	5.25137	4.13785	g/veh-mi
30	6.39379	4.95917	3.96705	g/veh-mi
35	5.85321	4.56599	3.66598	g/veh-mi
40	5.44984	4.25399	3.40953	g/veh-mi
45	5.19692	4.06582	3.26128	g/veh-mi
50	5.09327	4.00585	3.22877	g/veh-mi
55	5.09711	4.02803	3.26399	g/veh-mi

g/veh-mi = grams per vehicle mile

The CAL3QHC dispersion model was used to estimate peak 1-hour CO concentrations near the affected intersections. Peak 8-hour CO concentrations were obtained by multiplying the highest peak-hour CO estimates by a persistence factor of 0.7 (EPA, 1992). The persistence factor accounts for the fact that, over 8 hours (as distinct from a single hour), vehicle volumes will fluctuate downward from the peak hour, vehicle speeds might vary, and meteorological conditions, including wind speed and wind direction, will vary compared with the conservative assumptions used for the single hour. Receptors were placed around the intersections at distances of 0, 25, and 50 meters along each approach. The receptors were placed 3 meters from the edge of the roadway to ensure that they were not within the mixing zone of the travel lanes (EPA, 1992). The input values used in CAL3QHC are summarized in Table 4.

Microscale modeling is used to predict CO concentrations resulting from emissions from motor vehicles, using roadways immediately adjacent to the locations at which predictions are being made. A CO background level must be added to these values to account for CO entering the area from other sources upwind of the receptors. The background 1-hour CO concentration was estimated based on the recommended background concentration for a suburban business area in the Puget Sound Regional Council *Guidebook for Conformity* (PSRC, 1995). The recommended 1-hour CO background concentration was 3.0 parts per million (ppm). The EPA persistence factor of 0.7 was then applied to estimate the 8-hour CO background concentration of 2.1 ppm.

The background CO concentrations were added to the respective modeled 1-hour and 8-hour CO impacts to establish the design values for each of the project intersections. The predicted 1-hour and 8-hour CO design value concentrations at the three intersections evaluated for CO hotspots are presented in Table 5 and Table 6, respectively. As shown, CO concentrations from traffic at the worst-case intersections would not cause or contribute to an exceedance of the 1-hour or 8-hour CO NAAQS of 35 micrograms per cubic meter ($\mu g/m^3$) and 9 $\mu g/m^3$, respectively.

4.3 Mitigation of Carbon Monoxide Impacts

Because the proposed project Build conditions would not have an adverse effect on air quality, no mitigation measures are proposed.

TABLE 4
CAL3QHC Input Parameters

Parameter	Description
Surface roughness	100 cm
Wind speed	1 m/s
Stability class	E
Mixing height	1,000 m
Wind direction increment	10 degrees
Receptor height	1.8 m
Source height	0 m
Signal type	Actuated
Intersection arrival rate	Average progression

cm = centimeter
m = meter
m/s = meters per second

TABLE 5
Modeled 1-Hour Carbon Monoxide Design Values

Intersection	Maximum 1-Hour Carbon Monoxide Design Values (ppm)								
	Existing 2014	Inbound 2020	Outbound 2020	No Tacoma Link Vehicle 2020	No Build 2020	Inbound 2040	Outbound 2040	No Tacoma Link Vehicle 2040	No Build 2040
Division Ave./N. Tacoma Ave.	4.2	3.8	3.8	3.8	3.8	3.6	3.6	3.6	3.6
N. I St./N. Tacoma Ave.	4.1	3.7	3.6	3.6	3.6	3.5	3.5	3.5	3.5
Division Ave./N. I St./S. I St.	4.3	4.0	4.2	4.2	4.2	3.7	3.7	3.7	3.7
NAAQS	35								

Results include a background of 3 ppm.

TABLE 6
Modeled 8-Hour Carbon Monoxide Design Values

Intersection	Maximum 8-Hour Carbon Monoxide Design Values (ppm)								
	Existing 2014	Inbound 2020	Outbound 2020	No Tacoma Link Vehicle 2020	No Build 2020	Inbound 2040	Outbound 2040	No Tacoma Link Vehicle 2040	No Build 2040
Division Ave./N. Tacoma Ave.	2.9	2.7	2.7	2.7	2.7	2.5	2.5	2.5	2.5
N. I St./N. Tacoma Ave.	2.9	2.6	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Division Ave./N. I St./S. I St.	3.0	2.8	2.9	2.9	2.9	2.6	2.6	2.6	2.6
NAAQS	9.0								

Results include a background of 2.1 ppm

5.0 Mobile Source Air Toxics

MSAT assessments are required for most federal transportation projects. Based on the example projects defined in the FHWA guidance *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA* dated December 6, 2012 (FHWA, 2012), the Tacoma Link Expansion would be classified as a project with Low Potential MSAT Effects. In addition to the criteria air pollutants that must meet the NAAQS, EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

5.1 MSAT Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments of 1990, whereby Congress mandated that EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (http://www.epa.gov/ncea/iris/index.html) (EPA, 2013). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (http://www.epa.gov.ttn.atw.nata1999/) (EPA, 2010b). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. Although the Federal Highway Administration (FHWA) considers these the priority MSATs, the list is subject to change and may be adjusted in consideration of future EPA rules.

Based on an FHWA analysis using EPA's MOVES2010b model, even if vehicle-miles traveled (VMT) increased by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSATs is projected for the same time period, as shown in Exhibit 3.

5.2 Qualitative MSAT Impact Assessment

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the Build and No Build alternatives.

For each project alternative, the amount of MSATs emitted would be proportional to the VMT, assuming that other variables such as fleet mix are the same for each alternative. The proposed project is expected to lower vehicle trips in the project area for the Build conditions compared to the No Build conditions. The Build conditions may result in slightly higher short-term MSAT emissions at interchanges as a result of vehicle delay along the project alignment; however, the reduction in overall VMT would result in a reduction of MSAT emissions for the action alternative along the entire corridor.

5.3 Mitigation of MSAT Impacts

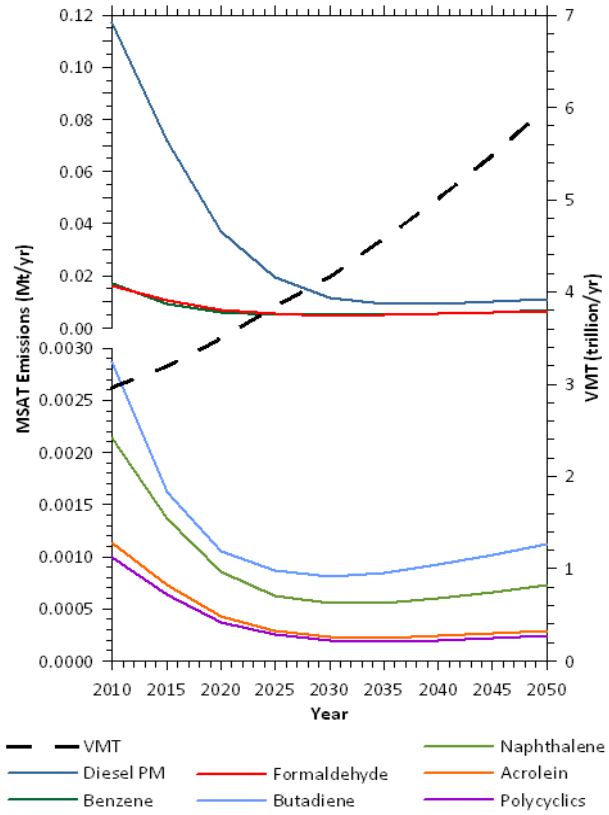
As described above, the project MSAT emissions would not have an adverse impact in the project area because of the overall expected reduction in VMT. Therefore, no mitigation of MSATs would be required for the project.

6.0 Climate Change and Greenhouse Gasses

Climate change is a national and global concern. Although the earth has gone through many natural changes in climate in its history, there is general scientific agreement that the earth's climate is currently changing at an accelerated rate and would continue to do so for the foreseeable future. Anthropogenic (human-caused) greenhouse gas (GHG) emissions are believed to contribute to this rapid change. Carbon

dioxide (CO_2) makes up the largest component of these GHG emissions. Other prominent transportation GHGs include methane and nitrous oxide.

EXHIBIT 3
MSAT Trends



Source: FHWA, 2012.

Many GHGs occur naturally. Water vapor is the most abundant GHG and comprises approximately two-thirds of the natural greenhouse effect. However, burning fossil fuels and other human activities are adding to the concentration of GHGs in the atmosphere. Many GHGs remain in the atmosphere for time periods ranging from decades to centuries. GHGs trap heat in the earth's atmosphere. Because the atmospheric concentration of GHGs continues to climb, our planet will continue to experience climate-related phenomena. For example, warmer global temperatures can cause changes in precipitation and sea levels.

6.1 Qualitative GHG Impact Assessment

GHGs impact assessment for the TLE project has been addressed in a qualitative manner, appropriate for a NEPA Documented Categorical Exclusion and anticipated impacts from the proposed project. The Tacoma Link Expansion is intended to reduce traffic volume and VMT in the project area. Because the proposed Build condition Tacoma Link system would be electric-powered and would reduce vehicle trips in the project area compared the No Build Alternative, direct emissions of GHGs from the project Build conditions would be not be expected. As part of the qualitative assessment, operation of the project would reduce 4.3 million VMT in the project area in 2035 for the Build condition compared to the No Build condition. EPA estimates that carbon dioxide emissions from gasoline vehicles are approximately 411 grams of CO_2 per

mile.[17] The TLE would result in a reduction of approximately 730 tons per year of CO_2 in the project area for the Build condition compared to the No Build condition. However, indirect emissions of GHG would be generated by fossil-fueled power plants supplying power to the grid to support the electric trains. The Pacific Northwest electricity grid is mostly comprised of clean hydroelectric power sources compared to fossil fuel power sources. Therefore, the reduction of GHGs from the reduced VMT in the project area would be expected to offset the GHGs indirectly emitted for powering the electric trains. However, operation of the OMF would result in a minor increase in GHG emissions associated with exhaust from worker vehicles and any fossil-fueled maintenance equipment.

As described in Section 2.0, GHG emissions would also be generated due to temporary construction activities of the TLE alignment and expansion of the Operation and Maintenance Facility. These GHG emissions would be from exhaust generated by construction related equipment and worker vehicle commute. Due to the short term nature of construction emissions for the TLE, it is anticipated that the GHG emissions associated with construction activities would be minimal.

6.2 Mitigation for GHG Emissions

As described above, the Tacoma Link Expansion is intended to increase efficiency and reduce vehicle trips in the project area. Therefore, operation of the project would not result in an increase of GHGs compared to the No Build alternatives and would not require project mitigation.

7.0 References

Federal Highway Administration (FHWA). 2004. T*ransportation Air Quality – Selected Facts and Figures*. Available at http://www.fhwa.dot.gov/environment/aqfactbk/ factbk11.htm. Accessed February 2014.

Federal Highway Administration (FHWA). 2012. *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA*. Available at http://www.fhwa.dot.gov/environment/air_quality/air_toxics/policy_and_guidance/aqintguidmem.cfm. August 1.

Puget Sound Clean Air Agency (PSCAA). 2011. Current Central Puget Sound Region Designated Maintenance and Nonattainment Areas. January.

Puget Sound Clean Air Agency (PSCAA). 2013. *Air Quality Data & Reports.* Available at http://www.pscleanair.org/airq/reports.aspx. Accessed August 2014.

Puget Sound Regional Council (PSRC). 1995. *Guidebook for Conformity. Air Quality Analysis Assistance for Nonattainment Areas*. PSRC, Ecology, WSDOT, RTC, & SRTC. September.

Puget Sound Regional Council (PSRC). 2010. *Transportation Plan 2040*. May.

Puget Sound Regional Council (PSRC). 2012. *Transportation Improvement Program*.

U.S. Environmental Protection Agency (EPA). 1992. Guideline for Modeling Carbon Dioxide from Roadway Intersections. November.

U.S. Environmental Protection Agency (EPA). 2010a. *Using MOVES in Project-Level Carbon Monoxide Analyses*. December.

[17] EPA, 2014. *Greenhouse Gas Emissions from a Typical Passenger Vehicle*. Office of Transportation and Air Quality. May 2014. EPA-420-F-14-040.

U.S. Environmental Protection Agency (EPA). 2010b. National Air Toxics Assessment. Available at http://www.epa.gov/ttn/atw/nata1999/.

U.S. Environmental Protection Agency (EPA). 2013. Integrated Risk Information System. Available at http://www.epa.gov/ncea/iris/index.html.

Washington State Department of Transportation. 1999. *Memorandum of Agreement—Fugitive Dust*. Seattle, Washington. December.

ATTACHMENT E

FTA ESA Screening Checklist

ESA SCREENING CHECKLIST

Note: The purpose of this checklist is to assist sponsoring agencies and FTA in gathering and organizing materials for environmental analysis required under the Endangered Species Act (ESA). Submission of the checklist by itself does not meet ESA requirements. This checklist is intended solely for Region X use. Please contact the FTA Region 10 office at (206) 220-7954 if you have any questions regarding this worksheet.

Sponsoring Agency Sound Transit		Date Submitted
Project Title Tacoma Link Expansion		FTA Project Number (if known)
Project Location (Include Street Address, City, County) Tacoma, Pierce County		
Project Contact: Steve Kennedy	Phone Number (206) 398-5302	E-mail Address (if available) steven.kennedy@soundtransit.org

Please answer the following questions as completely as possible. If the question is not applicable, check "NA" in the space to the right

1. Describe the project and its purpose. Identify the jurisdiction(s) and watersheds (Watershed Resource Inventory Area/WRIA or Hydrologic Unit Code/HUC) in which the project is located.

   The TLE is the proposed expansion of the existing Tacoma Link system from the Theater District Station that consists of constructing and operating an approximately 2.4 mile expansion. The purpose of the project is to improve mobility and access to the regional transit system for Tacoma residents, employees, and visitors by connecting the existing Tacoma Link system with Tacoma's major activity centers and destinations within the city.

   The proposed alignment extends north from the existing Tacoma Link terminus at the Theater District Station at Commerce and 9th Street via Stadium Way, continues west via N 1st Street and Division Avenue, and then continues south on MLK Jr. Way to S 19th Street. Sound Transit is considering six potential station locations on the alignment. In addition, one station (Theater District) would be relocated in the median, in front of the Old City Hall Building.

   See Appendix B for complete project description.

   The proposed project is located within Water Resource Inventory Area (WRIA) 10 - Puyallup-White (USGS Hydrologic Unit No. 17110014)

2. Have all other NEPA requirements been completed for this project?

   ☒ Yes ☐No
   If so, under which NEPA Class does this project fall? (Refer to DCE letter, FONSI, or ROD)
   ☐ Class I ☒ Class II ☐ Class III

3. Does the project qualify as a CE or a DCE?

☒ Yes ☐No

Has a Region X Documented Categorical Exclusion Worksheet been completed?

☒ Yes ☐No

Will the project include Best Management Practices / Conservation Measures?

☒ Yes ☐No

Has the BMP / CM Checklist (Appendix A) been completed?

☒ Yes ☐No

(Note: If the project: 1) includes in-water work or work below the ordinary high water mark (OHWM) of a waterbody with listed salmonids, 2) adds > 5,000 square feet of impervious surface, OR 3) includes any new impervious surface within 150 feet of a stream waterbody with listed salmonids, it may need to go through formal consultation with the NMFS and USFWS)

4. Has the applicant obtained Endangered/Threatened Species lists and critical habitat lists from both National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) for the project area?

☒ Yes ☐No

List NMFS species/habitat here (and attach documentation):

Endangered: None. There are no endangered species located in the project area which is located in a heavily urbanized and industrialed area of Tacoma. The alignment is located 1,000 feet from Commencement Bay at the closest point with the majority of the alignment located over 2,000 feet away. The OMF expansion site is located 1,600 feet from Commencement Bay and 4,500 feet from the Puyallup River.

Threatened: None. See above under Endangered.
Proposed: None. See above under Endangered.

List USFWS species/habitat here (and attach documentation):

Endangered: None. Attached information provides information for all of Pierce County and none of the species listed are located in the project area. Similar to that described above under NMFS, the project area does not contain any listed species or critical habitat.

Threatened: None. See above under USFWS Endangered

Proposed: None. See above under USFWS Endangered.

5. Has the applicant obtained Essential Fish Habitat (EFH) lists from the NMFS website (as required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA)) for the project area?

☒ Yes ☐No

List Essential Fish Habitat here (and attach documentation):

None. The project area does not contain any aquatic environment (marine, freshwater, or wetlands) and is not located near any aquatic environments.

6. List the names of your partners for the project. Identify the project lead agency. ☐ N/A

Sound Transit and the City of Tacoma are partners for the project and the Federal Transit Administration (FTA) is the NEPA lead agency for the project.

7. Check the federal permits needed for your project. List the numbers of the nationwide permits if needed.

	N/A	Pending	Approved
ACOE Nationwide _____	☒	☐	☐
ACOE Individual _____	☒	☐	☐
NPDES (Gen. or Ind.) _____	☐	☒	☐
Other _____	☐	☐	☐

8. Check State and local permits needed for your project. Circle jurisdiction.

	N/A	Pending	Approved
HPA	☒	☐	☐
Surface Mining	☒	☐	☐
Forest Practices	☒	☐	☐
Shoreline	☒	☐	☐
Shoreline Exemption	☒	☐	☐
Clearing and Grading	☒	☐	☐
Building or Subdivision	☐	☒	☐
Sensitive Areas Ordinance	☐	☒	☐
Other _____	☐	☐	☐

9. Which federal, State, or tribal agencies have you contacted regarding your project and its impacts? ☒ N/A

The Puyallup Tribe, Nisqually Tribe, Yakama Nation, and Steilacoom Tribe have been consulted about the project through the Section 106 process.

Describe any modifications to the project as a result of these contacts:

The tribes have not responded to the Section 106 Consultation letters.

10. What is the specific location of your project? Provide the zoning designation and the ¼ section, section, township, WRIA(s), and range.

The project is located within the city limits of Tacoma, Pierce County, Washington. The proposed expansion is generally located north and west of the central business district for Tacoma. It travels through areas zoned primarily for commercial, mixed use and multifamily residential. The OMF expansion is located in an industrial zoned area of Tacoma south of the Port of Tacoma. The project alignment is located within portions of the NE, SE, and SW 1/4 Section 32, Township 20 North, and Range 3 East and portions of the NW, NE, and SE 1/4 of Section 5, Township 20 North, and Range 3 East. The OMF expansion is located in NE 1/4 of Section 9, Township 20 North, and Range 3 East.

The TLE is located within WRIA 10 - Puyallup-White

Does the project occur within an existing transportation corridor?

☒ Yes ☐No

11. Is the project within 150 feet of a lake, river, stream or bay, etc.? ☐ Yes ☒No

If so, name the waterbodies.

Do these waterbodies contain listed salmonids or bull trout? ☐ Yes ☐No

If so, name the listed species and agency with jurisdiction (USFWS or NMFS).

12. a. Will blasting or pile-driving occur within 1 mile of suitable owl or murrelet habitat (specifically, old growth tree(s) or forest)? ☐ Yes ☒No (if no, go to 12b)

b. Is the project within 0.25 miles of suitable owl or murrelet habitat? ☐ Yes ☒No

13. a. Will blasting or pile-driving occur within 1 mile of a known bald eagle nest? (Contact the State Department of Fish & Wildlife for nest locations.) ☐ Yes ☒No (must answer both 13a and 13b)

b. Is the project within 0.5 miles (line-of-sight) or 0.25 miles (non-line-of-sight) of a bald eagle nest, wintering concentration, roost, or foraging area?

☐ Yes ☒No

14. What is the size of the project (list area or length of disturbance), the amount of new impervious surface, and the total impervious surface? ☐ N/A

The proposed alignment extends Tacoma Link by 2.4 miles and would be located within the existing City of Tacoma right-of-way. The TPSS locations would increase impervious surfaces by less than 0.1 acres. Because the majority of the project is constructed within the existing right-of-way, the amount of new impervious surfaces added to the approximate 10 acres of total impervious surface where the alignment would be constructed is minor.

The expansion of the OMF is on a 0.7-acre property that is currently covered in impervious surfaces. There is no increase in the impervious surface at the OMF site.

In answering the following questions, please describe the impacts assuming no mitigation:

IMPACT ASSESSMENT

15. Describe the potential beneficial and adverse impacts upon aquatic resources that will be caused by construction of the project: ☐ N/A

No adverse impacts on aquatic resources are anticipated. The project is not located near any aquatic resources. Construction activities could result in potentially degrading downstream aquatic habitats, but best management practices (BMPs) would be implemented to avoid and minimze the potential impacts. The project would adhere to all applicable federal, state, and local regulations. A Construction Stormwater General Permit would be required prior to construction and the permit requires operators of regulated construction sites to develop stormwater pollution prevention plans (SWPPP) and prepare and implement temporary erosion and sediment control plan (TESC).

16. Describe the potential beneficial and adverse impacts upon aquatic resources resulting from the maintenance, use, or operation of the project (post-construction impacts): ☐ N/A

The TLE is not anticipated to have any adverse impacts upon aquatic resources resulting from maintenance, use, or operation of the project because the project is principally located within existing right-of-way and the OMF expansion site is currently covered with impervious surfaces.

17. Describe the potential beneficial and adverse impacts upon terrestrial resources that will be caused by construction of the project: ☐ N/A

The proposed project is not anticipated to result in any impact on terrestrial resources because the project is located within existing right-of-way and areas that have been previously developed. Construction activities would result in short-term noise impacts, but because there are no threatened or endangered species in the project area, no adverse impacts to terrestrial resources are expected. Prior to construction a SWPPP and TESC would be prepared and implemented.

18. Describe the potential beneficial and adverse impacts upon terrestrial resources resulting from the maintenance, use, or operation of the project (post-construction impacts): ☐ N/A

Operation of the project would not result in any adverse impacts to terrestrial resources from maintenance, use, or operation. The project is located in an urbanized area and within existing transportation corridors. The project would not result in any noise impacts and is anticipated to reduce vehicle miles traveled for automobiles, which would result in beneficial air quality impacts.

MITIGATION

19. Is the project likely to alter the water quality of any water bodies such as bays, estuaries, lakes, streams, rivers or wetlands (through sedimentation, urban runoff, toxics, turbidity, etc.)?

☐ Yes ☒ No (If yes, answer a and b.)

a. What mitigation is proposed for construction impacts?

Prior to construction a NPDES Construction Stormwater General Permit would be required and a SWPPP, TESC and Spill Preventation, Containment, and Countermeasure Plan would be prepared to avoid and minimize any water quality impacts.

b. What mitigation is proposed for long-term impacts?

No mitigation is required because the project is not expected to have any long-term impacts on water quality.

20. Will the project discharge water or generate runoff to any water bodies such as bays, estuaries, lakes, streams, rivers or wetlands?

☐ Yes ☒No (If yes, answer a and b.)

a. What mitigation is proposed for construction impacts?

b. What mitigation is proposed for long-term impacts?

21. Are clearing and grading activities part of the project? What is the area of direct disturbance? Include soil-disturbing activities, tree/shrub removal, and alteration of upland habitat.

☒ Yes ☐ No (If yes, answer a and b.)

a. What mitigation is proposed for construction impacts?

The OMF expansion site is approximately 0.7 acres and includes an existing structure and impervious surfaces. The TPSS sites are currently existing City of Tacoma right-of-way or landscaped areas on City of Tacoma property. These sites would all require soil disturbance but none of the sites require the removal of trees or shrubs and none of the sites contain any upland habitat. Prior to construction a NPDES Construction Stormwater General Permit would be required as well as SWPPP and TESC plan.

b. What mitigation is proposed for long-term impacts?

No long-term impacts are anticipated and no mitigation is required.

22. Will the project remove or modify riparian vegetation within 150 feet of a water body?

☐ Yes ☒ No (If yes, answer a and b.)

a. What mitigation is proposed for construction impacts?

b. What mitigation is proposed for long-term impacts?

23. Will the project place a structure within—or cause any change to—the bed or banks of a body of water?

☐ Yes ☒ No (If yes, answer a and b.)

a. What mitigation is proposed for construction impacts?

b. What mitigation is proposed for long-term impacts?

24. Will the project place fill or structures within any 100-year floodplain?

☐ Yes ☒ No (If yes, answer a and b.)

a. What mitigation is proposed for construction impacts?

b. What mitigation is proposed for long-term impacts?

25. Will the project divert water to or from the bay, estuary, lake, stream, river or wetland?

☐ Yes ☒ No (If yes, answer a and b.)

a. What mitigation is proposed for construction impacts?

b. What mitigation is proposed for long-term impacts?

26. Will construction and/or operation of the project produce noise above ambient levels?

I

☒ Yes ☐No

If so, explain:

Operation of the project does not produce any noise levels that would approach or exceed applicable FTA thresholds. Construction of the project would result in temporary increase in noise levels in the area of construction. The increase in noise levels would depend on the type of equipment and the duration of the activity. Construction of the OMF expansion would require some pile-driving, which would be the loudest construction activity.

27. Has all necessary environmental documentation been provided to FTA (request letters, agency response documentation, permit approvals)?

☒ Yes ☐No

Appendix A

Best Management Practices (BMPs) / Conservation Measures (CM) Checklist

Please confirm use of the following measures in your project. If the question is not applicable, check "NA" in the space to the right and provide an explanation of why. Consult your FTA Region 10 contact for more information on this checklist.

Conservation Measures During Construction

Exposed Soils/Riparian Vegetation:

☒ Yes ☐No ☐N/AMinimize the areal extent of exposed soil at any given time. Stabilize all unstable slopes with the potential to impact listed fish-bearing waters.

☐ Yes ☐No ☒N/A Replant disturbed riparian areas outside of the 150 foot setback with native species at a 2:1 ratio, including the removal of mature trees (greater than 6 inches diameter breast height, or dbh).

☐ Yes ☐No ☒N/A Do not place temporary material storage piles (>12 hours storage) in the 100-year floodplain during the rainy season unless storage occurs when flooding is not imminent, and storage piles with erosive material are covered with plastic tarps (or similar) and surrounded with erosion control devices.

☒ Yes ☐No ☐N/A Conduct extensive soil-disturbing work, including excavation, in the "dry" season (generally from June to October).

☒ Yes ☐No ☐N/A Prepare a Temporary Erosion and Sediment Control (TESC) Plan prior to construction to identify standard erosion and sediment control procedures.

Sto*rmwater Maintenance:*

☒ Yes ☐No ☐N/A Develop and implement a Stormwater Site Plan for > 1 acres of clearing, grading, or grubbing.

☒ Yes ☐No ☐N/A No untreated, undetained stormwater or dewatering will leave the limits of the construction site.

☒ Yes ☐No ☐N/A Discharged water will not exceed existing (baseline) conditions based on a 2-year storm event.

Spill Controls

☐ Yes ☐No ☒N/A Restrict vehicle use in wetland and/or riparian areas.

☐ Yes ☐No ☒N/A Maintain a 300 ft setback for construction staging areas and equipment refueling near wetlands, streams, rivers, or drainages.

☒ Yes ☐No ☐N/A Prepare a Spill Prevention, Containment, and Control Plan (SPCCP) prior to construction to address potentially toxic materials used on-site during construction.

☒ Yes ☐No ☐N/A Keep spill clean-up equipment available onsite during construction, and include a spill control separator in the overall drainage system, if necessary.

☒ Yes ☐No ☐N/A Paving, chip sealing, and/or painting should occur in dry weather. Use 2-gallon pails and drip pans/protective devices when available.

☒ Yes ☐No ☐N/A For projects involving concrete, establish concrete truck chute cleanout areas to properly contain wet concrete. Protect all inlets and catchments from fresh concrete, tackifier, paving, or paint stripping if inclement weather unexpectedly occurs.

☒ Yes ☐No ☐N/A Collect and dispose debris accumulations prior to fresh water flushing. Use clean water only.

☒ Yes ☐No ☐N/A Clean paint materials and maintenance equipment outside of surface waters. Do not discharge cleaning runoff into surface waters.

Long-Term Conservation Measures

☒ Yes ☐No ☐N/A All construction & operation will occur greater than 150 feet from a listed salmonid-bearing waterbody.

☒ Yes ☐No ☐N/A Oil-water separators, bioswales, or other appropriate water quality treatment will be provided for 100% of all new and disturbed impervious surfaces.

☒ Yes ☐No ☐N/A Stormwater infiltration facilities will be designed with appropriate infiltration conditions and will be upgraded to handle increased flows or treatment.

☒ Yes ☐No ☐N/A Stream modifications or in-stream structures will not occur.

Appendix B

Project Description

The TLE project is the proposed expansion of the existing Tacoma Link system from the existing Theater District Station to the Stadium and Hilltop districts in downtown Tacoma. The project includes constructing and operating an extended system approximately 2.4 miles long.

The proposed alignment extends north from the existing Tacoma Link terminus at the Theater District Station at Commerce and 9th Street via Stadium Way, continues west via N 1st Street and Division Avenue, and then continues south on MLK Jr. Way to S 19th Street. Sound Transit is considering six potential station locations on the alignment as follows:

- Stadium Way/S 4th Street
- Stadium District
- MLK Jr. Way/Division Station
- MLK Jr. Way/S 6th Avenue
- MLK Jr. Way/S 11th Street
- MLK Jr. Way/S 19th Street

In addition, one station (Theater District) would be relocated in the median, in front of the Old City Hall Building. Stations would be spaced approximately 1,100 feet to 2,500 feet (1/5 to 1/2 mile) apart for convenient access for pedestrians and bicyclists.

The new proposed terminus of Tacoma Link is north of the MLK Jr. Way/S 19th Street intersection. The project is expected to include tail tracks at both S 19th Street and the Tacoma Dome Station, where a Tacoma Link vehicle could be parked to accommodate approximately 10-minute headways that are planned during the peak period.

Track Alignment, Roadway Configuration, and Traffic Signals and Signage

The overall approach to TLE project design is to minimize the project footprint and maintain the construction footprint within the existing public right-of-way to the extent practical. The alignment would be constructed within the existing City of Tacoma right-of-way and would generally share the lanes with other vehicles. The objective of the project's design is to blend into the normal traffic stream as practicably and safely as possible. Existing turn lanes, parking lanes, loading zones, bus stops, bicycle lanes, and sidewalks would mostly remain, as they exist today, with exceptions at stations and other areas where revisions are necessary to provide safe crossings and movements. Efficient multimodal access to station areas is also considered in the location of the stations.

Portions of Tacoma Link trackway would be exclusive, which means that they would not share lanes with other vehicles. Exclusive trackway portions are proposed along Division from MLK Jr. Way to approximately N "I" Street and at the terminus of MLK Jr. Way and S 19th Street (Exhibit B-1). Along the portion of Division, exclusive trackway is proposed in the eastbound direction for approximately 700 feet to accommodate controlled speeds of the Tacoma Link vehicle down the steeper grade (approximately 7 percent grade) and to reduce the potential for automotive traffic delays. At the terminus of MLK Jr. Way and S 19th Street, the northbound trackway at the station would be exclusive trackway for approximately 600 feet to allow Tacoma Link vehicles to wait at the station, if needed, without impacting northbound roadway traffic traveling along MLK Jr. Way. The TLE has also been designed to include a special track design along sections of the alignment along MLK Jr. Way to avoid any potential vibration impacts on adjacent properties. During final design, additional testing would be performed to determine whether a special track design along sections of MLK Jr. Way is required.

Station Platforms

Station platforms would be constructed at the curb-side or in the median. Each platform has a boarding area approximately equal to the length of one Tacoma Link vehicle, approximately 66 feet long. Ramps and curbs transition the boarding area back to the sidewalk or pavement; therefore, each station occupies a footprint of approximately 85 to 90 feet long. Curb-side platforms would be 8 feet wide, and median platforms would be 12 feet wide. Each platform would be Americans with Disability Act (ADA) accessible from either the sidewalk or crosswalk and would have level boarding with the Tacoma Link vehicle's low-floor section. Seating, signage, lighting (unless provide by streetlights), a canopy shelter, fare collection equipment, and public art would be constructed at each platform.

New curb ramps to provide ADA accessibility would be constructed at all four corners of intersections where new stations are proposed. New curb ramps would also be constructed at all four corners of intersections where Tacoma Link tracks make tight turns that encroach into the existing curb.

Driveways and sidewalks would be reconstructed in areas where it is necessary to accommodate Tacoma Link tracks and/or station platform ramps and curbs.

Utilities and Traction Power Substation

Sound Transit's practice is to relocate utilities if they are within a restricted-utility area under the new trackways. During the conceptual and preliminary design phases, the location of existing utilities would be investigated to determine whether they conflict with the proposed track design. Where the proposed track design conflicts with existing parallel utilities or crossing utilities, a proposed utility relocation plan would be developed. The plan would either protect or relocate the utility away from the restricted area. All existing utilities within the corridor would be examined for protection from stray current that may result from electricity of passing Tacoma Link vehicles.

The TLE segment would be serviced by up to five traction power substations (TPSSs). These TPSSs would provide 750-volt direct current power to the system using an overhead contact system (OCS) supported by poles located approximately 150 feet apart on both sides of the roadway and up to about 275 OCS poles. The location of the TPSSs would be located within existing City of Tacoma right-of-way or on properties currently owned by the City of Tacoma Poles for the OCS would be located within the existing roadway right-of-way and pole design would include streetlights where practical to minimize the total number of poles located along a street. As currently designed, the OCS would not be attached to any buildings in the project corridor.

Operations and Maintenance Facility Expansion

OMF expansion is required to increase storage space to accommodate the new Tacoma Link vehicles, spare parts, and maintenance equipment, and to provide office, reporting, and work space for additional operations and facility personnel. The proposed site for the OMF expansion is located adjacent to the existing OMF and approximately 0.7 acres, which would continue to be used for maintenance.

Geotechnical Investigations

The project includes geotechnical investigations consisting of drilling geotechnical borings at certain points along the TLE alignment and near the proposed OMF expansion site. The borings will be 10 to 100 feet in depth and up to 8 inches in diameter. The information the investigations provide will inform the preliminary design of the TLE project and help assess the geological conditions of the site for structural purposes; assess the soil for contaminants; and at the proposed OMF expansion site also assess the likelihood of encountering buried cultural resources.

Construction

Project construction is anticipated to take up to 3 years, but construction would not occur in the same areas over the entire period. Prior to construction, a work-specific construction plan would be developed that would include information on estimated schedules and durations and appropriate sequencing. For the most part, trackway construction is similar to typical road construction. Because the alignment is located in the existing right-of-way, no demolition of existing structures is required, and the first phase of construction would include any required utility relocations prior to installing the trackway. The trackway would typically be constructed in 4- to 8-block sections. The construction process would involve first removing existing pavement, and then placing the tracks, pouring concrete around the tracks, matching the slab to the existing roadway, and repaving and restriping the roadway. During the trackway construction the station platform and any needed utilities for the station could be installed, but the installation of the shelter and station amenities would occur later in the construction process. The OSC poles and span wire to power the Tacoma Link vehicles would be installed after construction of the trackway and station platforms.

Outside of the trackway and along the entire project alignment, the project would also repave with new asphalt and restripe the roadway and construct new curb ramps where required to comply with federal ADA standards. The restriping is designed to allow for safe passage and clearance of the Tacoma Link vehicle travel lanes adjacent to other parking, bicycle, and vehicle lanes. New traffic warning and regulatory signs are placed along the alignment to provide safety and information to drivers, bicyclists, and pedestrians. During construction, provisions for ADA-compliant accessible routes for pedestrians and access to businesses, residences, and community facilities along the alignment would be included.

Aside from the OMF expansion, most construction activity would occur in the existing roadway right-of-way and may require using on-street parking areas and adjacent travel lanes. To the extent possible, one travel lane would be open or rerouted to maintain the flow of traffic. When a single lane of traffic is open, flagging operations would be in place to guide motorists through the work zone. Where the trackway crosses an intersection, either the intersection would be closed or limited access would be maintained. Sidewalks and crosswalks would be opened or rerouted so that pedestrians can safely walk through the construction areas. However, depending on construction activities, sidewalks or crosswalks may be temporarily closed and pedestrians rerouted to a nearby facility.

Construction at the OMF would require the demolition of existing structures and excavation as needed to construct the new facility. Depth of excavation for the OMF site expansion is about 10 feet. Because of the poor soil conditions at the proposed OMF expansion site, 12-inch steel piles are expected to be driven to depths of up to 100 feet. The project would require approximately 90 to 120 piles, and the exact number required would be determined during final OMF expansion design. After the pile-driving is completed, the new trackway would be installed similar to the process used for the expansion of the alignment. Depth of excavation for the alignment expansion is about 14 inches for the trackway, about 24 inches for the TPSS foundations, and between 8 to 12 feet for the poles used for the OCS.

The existing OMF and other current Sound Transit property in the area of the existing OMF would be used for construction staging, in addition to any construction staging within the existing roadway right-of-way where construction activities are ongoing. Any additional required construction staging areas would be identified during final design. These areas are needed for construction activities, equipment storage, construction materials delivery and storage, contractor trailers, and construction crew parking. The construction contractor would lease the properties and obtain permits as needed. Staging areas would not require any permanent property acquisition. See Section W, Construction for more information.

ATTACHMENT F

EPA Sole Source Checklist

Sole Source Aquifer Checklist

PROJECT NAME: SOUND TRANSIT TACOMA LINK EXPANSION

NAME OF SOLE SOURCE AQUIFER OR SOURCE AREA:

Central Pierce County Sole Source Aquifer

1. Location of project:

The Tacoma Link Expansion (TLE) is located in Tacoma, Washington, Pierce County. The proposed alignment expansion would travel along portions of Commerce Street, Stadium Way, N 1st Street, Division Street, and MLK Jr. Way and the proposed expansion of the Operations and Maintenance Facility (OMF) is located adjacent to the existing Sound Transit OMF bounded between E 25th Street and the Tacoma Trestle. Refer to Exhibit 1-1 for the project location. Exhibit 1-2 provides additional detail on the location of the proposed OMF expansion site and the proximity to the Tacoma Trestle which is being replaced as part of the Sound Transit Tacoma Trestle project.

2. Project description.

The TLE project is the proposed expansion of the existing Tacoma Link system from the existing Theater District Station to the Stadium and Hilltop districts in downtown Tacoma. The project includes constructing and operating an extended system approximately 2.4 miles long.

The proposed alignment extends north from the existing Tacoma Link terminus at the Theater District Station at Commerce and 9th Street via Stadium Way, continues west via N 1st Street and Division Avenue, and then continues south on MLK Jr. Way to S 19th Street. Sound Transit is considering six potential station locations on the alignment as follows:

- Stadium Way/S 4th Street
- Stadium District
- MLK Jr. Way/Division Station
- MLK Jr. Way/S 6th Avenue
- MLK Jr. Way/S 11th Street
- MLK Jr. Way/S 19th Street

In addition, one station (Theater District) would be relocated in the median, in front of the Old City Hall Building. Stations would be spaced approximately 1,100 feet to 2,500 feet (1/5 to 1/2 mile) apart for convenient access for pedestrians and bicyclists.

The new proposed terminus of Tacoma Link is north of the MLK Jr. Way/S 19th Street intersection. The project is expected to include tail tracks at both S 19th Street and the Tacoma Dome Station, where a Tacoma Link vehicle could be parked to accommodate approximately 10-minute headways that are planned during the peak period.

Track Alignment, Roadway Configuration, and Traffic Signals and Signage

The overall approach to TLE project design is to minimize the project footprint and maintain the construction footprint within the existing public right-of-way to the extent practical. The alignment would be constructed within the existing City of Tacoma right-of-way and would generally share the lanes with other vehicles. The objective of the project's design is to blend into the normal traffic stream as practicably and safely as possible. Existing turn lanes, parking lanes, loading zones, bus stops, bicycle lanes, and sidewalks would mostly remain, as they exist today, with exceptions at stations and other areas where revisions are necessary to provide safe crossings and movements. Efficient multimodal access to station areas is also considered in the location of the stations.

Portions of Tacoma Link trackway would be exclusive, which means that they would not share lanes with other vehicles. Exclusive trackway portions are proposed along Division from MLK Jr. Way to approximately N "I" Street and at the terminus of MLK Jr. Way and S 19th Street (Exhibit B-1). Along the portion of Division, exclusive trackway is proposed in the eastbound direction for approximately 700 feet to accommodate controlled speeds of the Tacoma Link vehicle down the steeper grade (approximately 7 percent grade) and to reduce the potential for automotive traffic delays. At the terminus of MLK Jr. Way and S 19th Street, the northbound trackway at the station would be exclusive trackway for approximately 600 feet to allow Tacoma Link vehicles to wait at the station, if needed, without impacting northbound roadway traffic traveling along MLK Jr. Way. The TLE has also been designed to include a special track design along sections of the alignment along MLK Jr. Way to avoid any potential vibration impacts on adjacent properties. During final design, additional testing would be performed to determine whether a special track design along sections of MLK Jr. Way is required.

Station Platforms

Station platforms would be constructed at the curb-side or in the median. Each platform has a boarding area approximately equal to the length of one Tacoma Link vehicle, approximately 66 feet long. Ramps and curbs transition the boarding area back to the sidewalk or pavement; therefore, each station occupies a footprint of approximately 85 to 90 feet long. Curb-side platforms would be 8 feet wide, and median platforms would be 12 feet wide. Each platform would be Americans with Disability Act (ADA) accessible from either the sidewalk or crosswalk and would have level boarding with the Tacoma Link vehicle's low-floor section. Seating, signage, lighting (unless provide by streetlights), a canopy shelter, fare collection equipment, and public art would be constructed at each platform.

New curb ramps to provide ADA accessibility would be constructed at all four corners of intersections where new stations are proposed. New curb ramps would also be constructed at all four corners of intersections where Tacoma Link tracks make tight turns that encroach into the existing curb.

Driveways and sidewalks would be reconstructed in areas where it is necessary to accommodate Tacoma Link tracks and/or station platform ramps and curbs.

Utilities and Traction Power Substation

Sound Transit's practice is to relocate utilities if they are within a restricted-utility area under the new trackways. During the conceptual and preliminary design phases, the location of

existing utilities would be investigated to determine whether they conflict with the proposed track design. Where the proposed track design conflicts with existing parallel utilities or crossing utilities, a proposed utility relocation plan would be developed. The plan would either protect or relocate the utility away from the restricted area. All existing utilities within the corridor would be examined for protection from stray current that may result from electricity of passing Tacoma Link vehicles.

The TLE segment would be serviced by up to five traction power substations (TPSSs). These TPSSs would provide 750-volt direct current power to the system using an overhead contact system (OCS) supported by poles located approximately 150 feet apart on both sides of the roadway and up to about 275 OCS poles. The location of the TPSSs would be located within existing City of Tacoma right-of-way or on properties currently owned by the City of Tacoma Poles for the OCS would be located within the existing roadway right-of-way and pole design would include streetlights where practical to minimize the total number of poles located along a street. As currently designed, the OCS would not be attached to any buildings in the project corridor.

Operations and Maintenance Facility Expansion

OMF expansion is required to increase storage space to accommodate the new Tacoma Link vehicles, spare parts, and maintenance equipment, and to provide office, reporting, and work space for additional operations and facility personnel. The proposed site for the OMF expansion is located adjacent to the existing OMF and approximately 0.7 acres, which would continue to be used for maintenance.

Geotechnical Investigations

The project includes geotechnical investigations consisting of drilling geotechnical borings at certain points along the TLE alignment and near the proposed OMF expansion site. The borings will be 10 to 100 feet in depth and up to 8 inches in diameter. The information the investigations provide will inform the preliminary design of the TLE project and help assess the geological conditions of the site for structural purposes; assess the soil for contaminants; and at the proposed OMF expansion site also assess the likelihood of encountering buried cultural resources.

Construction

Project construction is anticipated to take up to 3 years, but construction would not occur in the same areas over the entire period. Prior to construction, a work-specific construction plan would be developed that would include information on estimated schedules and durations and appropriate sequencing. For the most part, trackway construction is similar to typical road construction. Because the alignment is located in the existing right-of-way, no demolition of existing structures is required, and the first phase of construction would include any required utility relocations prior to installing the trackway. The trackway would typically be constructed in 4- to 8-block sections. The construction process would involve first removing existing pavement, and then placing the tracks, pouring concrete around the tracks, matching the slab to the existing roadway, and repaving and restriping the roadway. During the trackway construction the station platform and any needed utilities for the station could be installed, but

the installation of the shelter and station amenities would occur later in the construction process. The OSC poles and span wire to power the Tacoma Link vehicles would be installed after construction of the trackway and station platforms.

Outside of the trackway and along the entire project alignment, the project would also repave with new asphalt and restripe the roadway and construct new curb ramps where required to comply with federal ADA standards. The restriping is designed to allow for safe passage and clearance of the Tacoma Link vehicle travel lanes adjacent to other parking, bicycle, and vehicle lanes. New traffic warning and regulatory signs are placed along the alignment to provide safety and information to drivers, bicyclists, and pedestrians. During construction, provisions for ADA-compliant accessible routes for pedestrians and access to businesses, residences, and community facilities along the alignment would be included.

Aside from the OMF expansion, most construction activity would occur in the existing roadway right-of-way and may require using on-street parking areas and adjacent travel lanes. To the extent possible, one travel lane would be open or rerouted to maintain the flow of traffic. When a single lane of traffic is open, flagging operations would be in place to guide motorists through the work zone. Where the trackway crosses an intersection, either the intersection would be closed or limited access would be maintained. Sidewalks and crosswalks would be opened or rerouted so that pedestrians can safely walk through the construction areas. However, depending on construction activities, sidewalks or crosswalks may be temporarily closed and pedestrians rerouted to a nearby facility.

Construction at the OMF would require the demolition of existing structures and excavation as needed to construct the new facility. Depth of excavation for the OMF site expansion is about 10 feet. Because of the poor soil conditions at the proposed OMF expansion site, 12-inch steel piles are expected to be driven to depths of up to 100 feet. The project would require approximately 90 to 120 piles, and the exact number required would be determined during final OMF expansion design. After the pile-driving is completed, the new trackway would be installed similar to the process used for the expansion of the alignment. Depth of excavation for the alignment expansion is about 14 inches for the trackway, about 24 inches for the TPSS foundations, and between 8 to 12 feet for the poles used for the OCS.

The existing OMF and other current Sound Transit property in the area of the existing OMF would be used for construction staging, in addition to any construction staging within the existing roadway right-of-way where construction activities are ongoing. Any additional required construction staging areas would be identified during final design. These areas are needed for construction activities, equipment storage, construction materials delivery and storage, contractor trailers, and construction crew parking. The construction contractor would lease the properties and obtain permits as needed. Staging areas would not require any permanent property acquisition. See Section W, Construction for more information.

3. Is there any increase of impervious surface? If so, what is the area?

The TLE would result in a minor increase, less than 0.1 acre of new impervious surface. The TLE would be constructed within existing right-of-way which is currently all impervious surface. The expansion of the OMF would be located on a property adjacent to the existing OMF and the

proposed location is covered with impervious surfaces including buildings and pavement.

4. Describe how storm water is currently treated on the site?

The area of the alignment discharges to City storm drains which flow to several outfalls in the Foss Waterway and Commencement Bay. The OMF area discharges to City storm drains which flows east to an outfall at the mouth of the Puyallup River into Commencement Bay

5. How will storm water be treated on this site during construction and after the project is complete?

Prior to construction a Stormwater Pollution Prevention Plan (SWPPP) and a Temporary erosion and Sediment Control Plan (TESC) would be developed and implemented which would identify the best management practices (BMPs) to be used during construction. The SWPPP would be consistent with the requirements of the City of Tacoma Surface Water Manual and the Washington State Department of Ecology Stormwater Manual for Western Washington. In addition, a Spill Prevention Containment, and Countermeasure Plan would also be prepared prior to construction.

The amount of stormwater runoff during project operation would not change. Existing drainage structures disturbed by the project would be replaced meeting current construction standards. New drainage structures would be constructed in accordance with current City of Tacoma and Sound Transit requirements.

6. Are there any underground storage tanks present or to be installed? Include details of such tanks.

No underground storage tanks are located along the project corridor or associated with the property proposed for the expansion of the OMF. In addition, no underground storage tanks would be installed as part of the project.

7. Will there be any liquid or solid waste generated? If so how will it be disposed of?

No liquid or solid waste would be generated by the project. The operations and maintenance facility may generate liquid or solid waste and anything generated would be disposed of in accordance with applicable requirements.

8. What is the depth of excavation?

Depth of excavation for the expansion of the alignment is about 14 inches for the trackway and between 8 to 12 feet for the poles used for the OCS. OCS poles would be installed about 150 feet apart and on both sides of the roadway.

Depth of excavation for the expansion of the OMF site is about 10 feet. In addition, because of the soil conditions and the potential for liquefaction, 12-inch steel piles would be driven to depths up to about 100 feet. The project would require approximately 90 to 120 piles and the exact number required would be determined during final design.

9. Are there any wells in the area that may provide direct routes for contaminates to access the aquifer and how close are they to the project?

There are no known wells in the project area.

10. Are there any hazardous waste sites in the project area especially if the waste site has an underground plume with monitoring wells that may be disturbed? Include details.

An Environmental Data Resources database search was conducted for the project to identify known or suspected sources of contamination in the project area within 660 feet of the proposed project alignment and 1,280 feet of the proposed OMF expansion site. There are hazardous waste sites that have been identified on properties adjacent to the alignment, but none of sites identified are associated with an underground plume or monitoring wells. Soil and groundwater samples will be collected from geotechnical explorations, archeological explorations, and due diligence explorations (pre-purchase evaluations) during the preliminary engineering phase of the project. The samples will be tested to evaluate soil and groundwater quality at the proposed OMF expansion site. The additional level of design and results of groundwater and soil testing will inform the plan for removal, treatment, and disposal of contaminated material if encountered during construction as well as remediation specifications and drawings.

11. Are there any deep pilings that may provide access to the aquifer?

Based upon groundwater data collected as part of the Sound Transit Tacoma Trestle Project, there are artesian conditions that extend about 30 to 40 feet below the existing ground surface. Pilings would be used during construction on the OMF expansion site. Because of the soil conditions and the potential for liquefaction piles would be driven to depths of about 100 feet. The project would require approximately 90 to 120 piles.

12. Are Best Management Practices planned to address any possible risks or concerns?

Yes, BMPs would be included as part of the SWPPP to address stormwater. Although no known contaminants exist on the project site, Sound Transit would develop a plan for the removal and treatment or disposal of any contaminated soil or groundwater encountered during construction. Any such occurrence would be managed using standard approaches in accordance with all federal, state, and local requirements. Although there are no known hazardous material sites, pile-driving could result in contamination migration to the aquifer if contaminated soil is encountered. The Sound Transit Tacoma Trestle Track and Signal Project has analyzed the potential for impacts to the aquifer with regards to contamination as a result of pile-driving.[18] The analysis included a description of the subsurface conditions, including soil

[18] Shannon & Wilson, Inc. 2014. *Potential Contamination Migration Due to Pile Driving*. Prepared for David Evans and Associates.

and groundwater, existing research on potential contamination migration, and how different pile types could impact the aquifer. The analysis concluded that, with the appropriate piles, open- or closed-end steel pipe piles, and the upward pressure of groundwater as a result of the artesian groundwater (which is under pressure and, when tapped, rises to the surface), impacts from contamination migration are unlikely. To minimize contamination migration the TLE would use either the open- or closed-end steel pipe piles for the construction of the proposed OMF expansion.

13. Is there any other information that could be helpful in determining if this project may have an effect on the aquifer?

The TLE would not create any pollutant generating impervious surface.

14. Does this Project include any improvements that may be beneficial to the aquifer, such as improvements to the wastewater treatment plan?

Existing drainage structures that need to be replaced would be upgraded to meet current City of Tacoma and Sound Transit requirements.

The EPA Sole Source Aquifer Program may request additional information if impacts to the aquifer are questionable after this information is submitted for review.

FTA coordinated with EPA and received approval from EPA in December 2014 based on the construction methods and best management practices outlined in this checklist. Please see the attached email approval.

TACOMA LINK EXPANSION

PROJECT VICINITY **EXHIBIT 1-1**

LEGEND

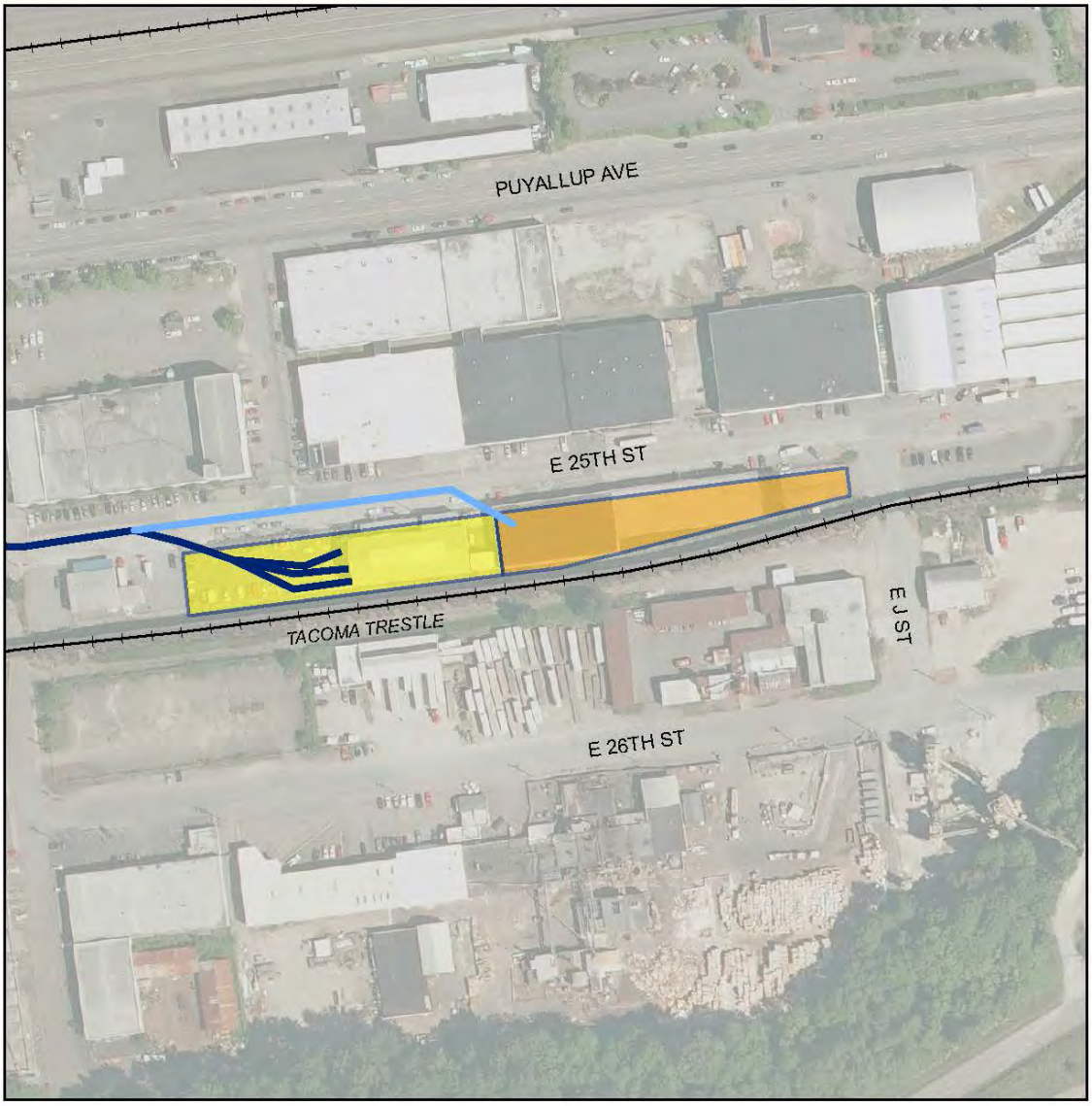
- Existing Stations
- Proposed Stations
- Existing Alignment
- Proposed Alignment
- Parks
- Existing Operations and Maintenance Facility Site
- Proposed Operations and Maintenance Facility Expansion Site
- TPSS Locations

Date: 3/17/2015

SOUNDTRANSIT RIDE THE WAVE

TACOMA LINK EXPANSION

OMF SITE **EXHIBIT 1-2**



0 75 150 300 Feet

Legend

- Existing Alignment
- Proposed Rail Extension
- Rail line
- Existing Operations and Maintenance Facility Site
- Proposed Operations and Maintenance Facility Expansion Site

SOUNDTRANSIT RIDE THE WAVE

From: John.Witmer@dot.gov <John.Witmer@dot.gov>
Sent: Monday, January 26, 2015 2:54:51 PM
To: Kennedy, Steven; Comis, Sue; Borbe, Elma
Subject: FW: Sound Transit Tacoma Link Extension Project - Sole Source Aquifer consultation

FYI below.

From: Eastman, Susan [mailto:Eastman.Susan@epa.gov]
Sent: Monday, January 26, 2015 2:51 PM
To: Witmer, John (FTA)
Subject: RE: Sound Transit Tacoma Link Extension Project - Sole Source Aquifer consultation

John,
Pleased Sound Transit is taking necessary precautions to protect our groundwater. Below is your approval based on additional commitments Sound Transit has made in the submitted revised checklist attached to your January 26, 2015 email and in their email to you dated January 23, 2015. Thanks.

Thank you for submitting your project for review. We have reviewed the information provided and find that the project will not have a significant adverse impact on the Central Pierce County Sole Source Aquifer and therefore the funding may proceed.

EPA reviews federally financially assisted projects that are proposed in federally designated Sole Source Aquifer review areas to determine if the projects have a potential to contaminate the aquifer through a recharge zone so as to create a significant hazard to public health. Such projects are submitted to EPA by federal, state, and local governments, and by the public.

This correspondence only addresses the Sole Source Aquifer Program, any other federal environmental requirements are your responsibility to ensure compliance. Please retain this email for your records.

From: John.Witmer@dot.gov [mailto:John.Witmer@dot.gov]
Sent: Monday, January 26, 2015 11:02 AM
To: Eastman, Susan
Cc: daniel.drais@dot.gov
Subject: FW: Sound Transit Tacoma Link Extension Project - Sole Source Aquifer consultation

Hi Susan. Please see the response below (and attached) from Sound Transit. ST will commit to soil testing and to use open or closed-end steel pipe piles for construction. John

John Witmer
FTA Region 10
915 Second Avenue, Suite 3142
Seattle, WA 98174-1002
206-220-7964
http://www.fta.dot.gov/regions/regional_offices_918.html

From: Kennedy, Steven [mailto:steven.kennedy@soundtransit.org]
Sent: Friday, January 23, 2015 4:32 PM
To: Witmer, John (FTA)
Cc: Borbe, Elma; Drais, Daniel (FTA); Comis, Sue
Subject: RE: Sound Transit Tacoma Link Extension Project - Sole Source Aquifer consultation

John: Attached is the revised Sole Source Aquifer Screening Checklist. We believe it addresses the issues EPA raises in their email below. First, as per Question 10 in the Checklist, Sound Transit is committing to doing soil and groundwater sampling from geotechnical investigations. This will inform the plan for removal, treatment, and disposal of contaminated material, if encountered during construction, as well as remediation specifications and drawings. As per Question 12, Sound Transit is committing to use open- or closed-end steel pipe piles for construction of the proposed OMF to deal with the artesian groundwater situation in that area and to avoid potential contamination migration impacts. This is the same type of pipe piles that the Sound Transit Tacoma Trestle project has committed to using (the Trestle project is right next to the proposed OMF expansion site).

Please let us know if you or EPA have additional questions.

Steven S. Kennedy, AICP
Senior Environmental Planner

Sound Transit
Planning, Environmental, and Project Development (PEPD)
401 S. Jackson St.
Seattle, WA 98177
(206) 398-5302 (direct)
(206) 903-7499 (fax)
steven.kennedy@soundtransit.org

From: John.Witmer@dot.gov [mailto:John.Witmer@dot.gov]
Sent: Wednesday, January 14, 2015 2:33 PM
To: Kennedy, Steven; Comis, Sue
Subject: FW: Sound Transit Tacoma Link Extension Project - Sole Source Acquifer consultation

Steve: Here's the response we got from EPA on the sole source aquifer consultation. They are advising some soil sampling to ensure that groundwater is not contaminated.

From: Eastman, Susan [mailto:Eastman.Susan@epa.gov]
Sent: Wednesday, January 14, 2015 2:17 PM
To: Witmer, John (FTA)
Cc: Drais, Daniel (FTA)
Subject: RE: Sound Transit Tacoma Link Extension Project - Sole Source Acquifer consultation

Hi John and Daniel,

This project presents some similarities to a recent project by FTA submitted by Daniel, "Tacoma Trestle". So given the thorough examination and recommendations by the contractor assigned to present best options for that project I would think similar precautions could be made with this project, i.e., "for open ended pipe piles, any driving shoe attached to the pile tip should have an outside diameter not larger than the outside diameter of the pile itself, thereby reducing the potential gaps to form between the exterior of the pile wall and the surrounding soils." I did positively note that only the two types of piles recommended by the contractors for this previous project are presented as options for this project.

In the checklist response to question 12 "Although no known contaminants exist on the project site, Sound Transit would develop a plan for the removal and treatment or disposal of any contaminated soil or groundwater encountered during construction."
How will the ground crew know if they have encountered contaminated soil or water? Sampling? Looking? Smelling? Federal, state and local authorities do our best to document locations of contaminants but in urban areas especially there is risk of contaminants that may not be recorded.

The other project I reference had documented contamination both recorded and showed up in soil sampling. This project is different in that there is no recorded contamination however it does seem prudent that some minimal soil sampling could be done to help ensure that is truly the case…. Ground truthing. Thoughts?
If this was a rural area I would not have these concerns.
If soil sampling turns up contaminants than similar precautions committed to in the Tacoma Trestle project seem reasonable. If soil sampling does not show any contamination then whatever you have planned as SOP is fine and my comment in first paragraph regarding the drill driving shoe would also be mute point.

I hope this all makes sense and sounds reasonable. Please let me know if you have questions or concerns.
Thanks,
Sue

From: John.Witmer@dot.gov [mailto:John.Witmer@dot.gov]
Sent: Monday, January 12, 2015 6:04 PM
To: Eastman, Susan
Cc: daniel.drais@dot.gov
Subject: Sound Transit Tacoma Link Extension Project - Sole Source Acquifer consultation

Susan: FTA is currently working on the NEPA process (documented categorical exclusion) for Sound Transit's Tacoma Link Expansion (TLE) Project. The project is located in downtown Tacoma in the Central Pierce County Sole Source Aquifer. Therefore, FTA would like to consult with EPA on potential impacts to the sole source aquifer.

The TLE project would expand the existing Tacoma Link light rail (streetcar) system by 2.4 miles from the existing Theater District Station to the Stadium and Hilltop districts in downtown Tacoma (please see the Exhibit 1-1 below and attached). The proposed alignment would travel along portions of Commerce Street, Stadium Way, N 1st Street, Division Street, and MLK Jr. Way. The project would also expand the existing maintenance base located adjacent to the Sound Transit Tacoma Trestle project (the maintenance base is located between E 25th Street and the Tacoma Trestle). Due to poor soil conditions, construction of the maintenance base would require driving (approximately 90 to 120) 12-inch steel piles to depths of up to 100 feet.

Although there are no known hazardous material sites, pile-driving could result in contamination migration to the aquifer if contaminated soil is encountered. The Sound Transit Tacoma Trestle Track and Signal Project has analyzed the potential for impacts to the aquifer with regards to contamination as a result of pile-driving. The analysis included a description of the subsurface conditions, including soil and groundwater, existing research on potential contamination migration, and how different pile types could impact the aquifer. The analysis concluded that, with the appropriate piles, open- or closed-end steel pipe, and the upward pressure of groundwater as a result of the artesian groundwater (which is under pressure and, when tapped, rises to the surface) impacts from contamination migration are unlikely.

There is no increase in impervious surface from the project. The TLE would be constructed within existing right-of-way which is currently all impervious surface. The expansion of the maintenance base would be located on a property adjacent to the existing base and the proposed location is covered with impervious surfaces including buildings and pavement. Prior to construction, a Stormwater Pollution Prevention Plan (SWPPP) and a Temporary erosion and Sediment

Control Plan (TESC) would be developed and implemented which would identify the best management practices (BMPs) to be used during construction. The amount of stormwater runoff during project operation would not change. Existing drainage structures disturbed by the project would be replaced meeting current construction standards. New drainage structures would be constructed in accordance with current City of Tacoma and Sound Transit requirements.

Attached are the details of the project in the Sole Source Aquifer Checklist.

Thank you for your time and please don't hesitate to contact me if you have additional questions. John

John Witmer
FTA Region 10
915 Second Avenue, Suite 3142
Seattle, WA 98174-1002
206-220-7964
http://www.fta.dot.gov/regions/regional_offices_918.html